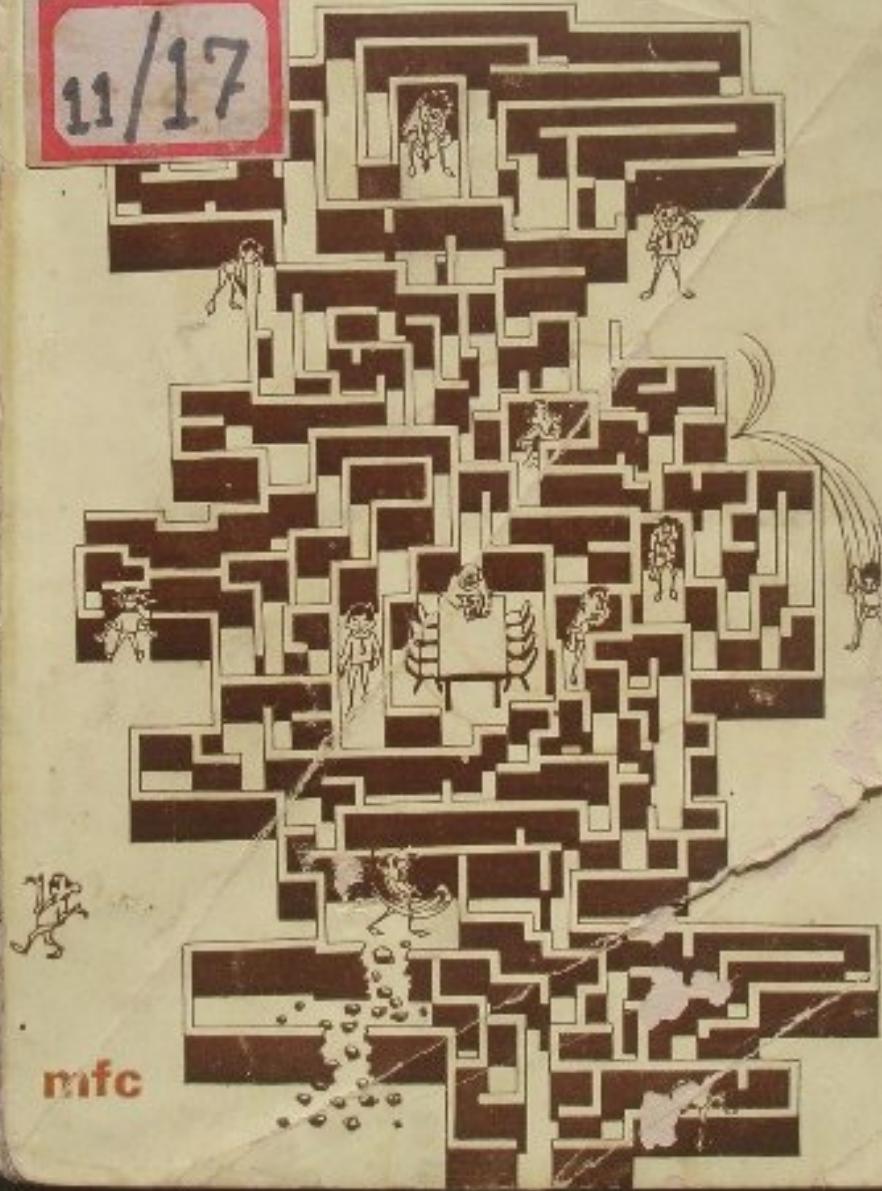


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HEALTH CARE WHICH WAY TO GO ?

EXAMINATION OF ISSUES AND ALTERNATIVES

11/17



476

HEALTH CARE WHICH WAY TO GO ?

Examination of Issues and Alternatives

Edited by
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and
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Preface

As one sees the problems of people's health more and more clearly one realises that we, the workers in the field of people's health, are far away from any confident feeling of having found the panacea for the health problems of the people. There is nothing to be apologetic about such lack of confident position because, as G.B. Shaw said, "Only the genius and the fools are very confident". We believe that most of us belong to neither of these two categories.

The prevalent thinking in the field of people's health care show a wide range with two schools of thought at two poles. One school feels confidently that the panacea for the health problems of the people has been found. It is the alternative approach of health care delivery usually meaning utilisation of non professionals (village health workers) and appropriate technology in health care. Another school is equally confident that the only real cause of all health problems of the people is the present economic system, and nothing can be and should be done to solve these health problems unless the present

economic-political system changes by revolution. The first leads to ill founded euphoria, another to inactive cynicism towards the burning health problems of the people.

Those who have their minds open to the reality would naturally not belong to any of these two exclusive views. Reality throws many questions which can not be answered by dogmatic positions. What is necessary is to see and face these questions frankly, to study and analyse the various issues regarding the ill health of the people and the solutions offered to these problems, to experiment with these solutions and through this process of question study-experiment form some views, still open, on various issues.

Medico Friend Circle is an organisation whose members have been responding to the people's health problems in this way. Medico Friend Circle Bulletin is the main organ through which these questions, studies, actions and reflections are published. This book is an anthology of the articles selected from the back issues (24th to 52nd) of the Bulletin. More information about the organisation can be found inside (Appendix IV).

A glance through the list of the articles included will reveal that they cover a wide range of topics with varied views and styles. This is not a comprehensive blue print of health care system. The authors have dealt independently with various issues. The articles either pose some unorthodox questions (Doctors in the pocket of drug industry, Kissa Khesari Ka, Who is malnourished, mother or the woman, A case against mass cholera vaccine, Water supply: quantity versus quality) or study a problem (Drug prescription: service to whom ?, Nurses, The cursed women in Medical System, Kissa Khesari Camp

Ka, Political Dimension of Health and Health services) or present some alternative solutions (Modern medicine and Ayurveda, WHW: lackey or liberator, Oral rehydration) or examine critically the presently offered alternative solutions (The Implementation of Rural Health Care Scheme, Dai Training, CHW: National Experience). All these are a part of an over all process of raising the questions, studying the problems and exploring the alternative solutions, and still they are all independent-at times even divergent-view points. But all of them touch some or other vital issues of people's health. Hence the title of the book.

The first book published by Medico Friend Circle was 'In Search of Diagnosis' in which an attempt was made to do critical analysis of the nature of the problems of health and health care system. The reader will note that in this book while the search for the diagnosis still continues, also started is the search for therapy. Beginning of the therapy need not necessarily wait for the final and irrefutable diagnosis. (Quite often only the post-mortem examination can give such a diagnosis). An appropriate therapy must begin as early as possible because it is a question of life or death for the people. Hence while there are articles which try to diagnose the exact nature of the people's ill-health, there are also articles which offer or examine the solutions. There are few which describe the experiences born out of the actual field work done by MFC members (Kissa Khesuri Camp Ka, When the search began.)

One very unconventional content of this book is the review 'MFC: which way to go?' Usually an organisation will hesitate to publish an internal debate like this. But as we are not ashamed of not being dead confident

and are clear enough to see our confusions, this review which summarises a very basic debate which went on for months in the MFC Bulletin has been included. We share this interesting debate with the wider readership because it will explain what is Medico Friend Circle's position today, and also because it may help some other groups and organisations in the problem of deciding their own role and identity.

Whom should we not thank? So many persons have helped us in editing MFC Bulletin as well as this book. The authors of the articles, included and not included in this book, all, by their writings, have helped a process the culmination of which is reflected in this book. Many friends in MFC have given their valuable suggestions. Ashok Bhargava put in lot of efforts to make the book look better. Augustine Veliath of VHAI and his colleagues looked after the production of the book and owes special thanks. We are also thankful to the owner and the staff of Printsman press, for printing this book for us in a short time.

*Abhay Bang
Ashvin Patel*

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Editors

HEALTH CARE : WHICH WAY TO GO ?

**Modern Medicine and Ayurveda :
a synthesis for people's medicine**

Ashok B. Vaidya



This rare Himalayan herb will cure your headache. If it doesn't I'll give you a pill prepared by a famous multinational drug house.

"Many medicinal plants used in systems of 'primitive medicine' are now recognized to have specific beneficial pharmacological effects. Indeed, much of the basic armamentarium of pharmacology today has been built up by investigating the properties of traditional herbal remedies. Traditional use of such remedies evolved through countless trials and errors—in short, through human experimentation."

—Fred L. Dunn¹

The current confusion about various 'Pathies' in India² can be ascribed, besides to the professional vested

interests, to an untrustworthy perception of the historical forces which shaped the growth of the modern scientific medicine. Modern medicine, despite its dramatic achievements for the relief of human suffering, is attacked vehemently both by a venerated old guard of Ayurveda like Shri Bapalal Vaidya³ and the young Illichians of modern anatomy like Manu Kothari and Lopa Mehta⁴. Criticism, and that too scathing and uncompromising, sells these days. A pen comes easy and may prove mightier than a test-tube; polemics for diverse "Pathies" abound. Is there a way out and how ?

Firstly, we must drop our prejudices and pet world-views and freshly recapitulate the historical development of the scientific medicine. Ayurvedic medicine had greatly influenced and directly contributed to the development of Greek medicine⁵. Subsequently, Arabic medicine⁶ borrowed heavily from Greek medicine and eventually came to be recognized as Unani (Etym. Ionian) medicine. During the dark ages in Europe, Galen was worshipped as the final authority just as Atreya Punarvasu, Sushruta and Agastya are deified by "Shuddha Ayurveda" protagonists in India of today. So it is obvious that the three 'Pathies' in India, viz. Ayurveda, Siddha and Unani medicine actually represent the ontogeny—the past stages, though partial, in the evolution of the modern medicine. Homeopathy was a reaction to allopathy—a past stage of modern medicine, which involved purging, bleeding and leeching as dominant therapeutic modalities. Once such an unbiased and historically valid view of various 'Pathies' is obtained, we will quit the sterile endless haranguing and evolve new rational and helpful strategies. A coherent synthesis of the valid elements of the different

"systems of medicine" into a modern scientific health science is needed for our people. This requires work and not words, experiments and experience and not ego-reinforcing antiquities.

Scientific Basis of Ayurvedic Drugs

The medicinal plants and herbs have been studied by many phytochemists and pharmacologists for the isolation and pharmacodynamic activity of their active ingredients. Many popular and widespread practices of herbal therapy have been validated by scientific experiment. But the information stays captive in the speciality journals or the confidential laboratory logbooks of scientists. It is desirable that we educate the practising doctors and lay people about the scientific knowledge on the mechanisms of action of Ayurvedic drugs commonly used by them. Such an educational programme will serve the following objectives : (1) Scientific world-view can affect other activities beneficially. (2) People may come forward to share their experiences with scientists, which may lead to research and new drugs and (3) a re-inforcement of the existing therapeutic practices with scientific data may popularize the use of such plants on a wide scale. (4) Scientific use of herbs and plants would tend to reduce the widespread quackery and witchcraft prevalent in our rural and backward areas.

Scientifically valid uses of Ayurvedic Therapy

Disease	Drugs or therapy	Mechanisms
Eye infections	<i>Argemone mexicana</i> <i>Berberis aristata</i> , <i>Butea frondosa</i>	Antibacterial alkaloids ⁹ Antibacterial tannins ¹⁰
Common cold ¹¹ , Hyperacidity	Salt free diet	Decreased HCL ¹² and chloride output Anocbicidal alkaloids— Contessine, emetine
Anoebiasis	<i>Holarrhena antidysenterica</i> <i>Cephaelis ipecacuanha</i>	Ultraviolet—sensitive psoralens ¹³
Leucoderma	<i>Psoralea corylifolia</i> <i>Ficus glomerata</i>	Contains L-Dopa ¹⁴ Anticholinergic
Parkinson's disease	<i>Mucuna pruriens</i> ¹⁴ <i>Atropa belladonna</i>	Non-steroidal anti- inflammatory curcumin ¹⁶ Antitussive alkaloid
Inflammation—sprains, arthritic, etc.	<i>Curcuma longa</i>	Steroidal activity ¹⁷ Antifungal agent in leaves Catecholamine depletion
Cough	<i>Adhatoda vasica</i>	
Menstrual disorders	<i>Saraca indica</i>	
Ring worm	<i>Cassia alata</i>	
Hypertension	<i>Rauwolfia serpentina</i>	

MODERN MEDICINE AND AYURVEDA

Table shows a brief list of certain Ayurvedic Drugs and therapy which have been studied or have a scientific validity of usage. Such lists can be prepared for different geographical regions. Depending on the plants easily available in the particular area, the existing therapeutic practices can be reinforced and new treatment modalities can be evolved for the common diseases. The field demands active research and service-work from the local groups. Herbal and medicinal plant farms must be made a compulsory responsibility of each and every panchayat and primary health centre. New useful plants and herbs can be grown in an area where a particular disease is prevalent. If such a movement can motivate and involve students and children, the results can prove to be very beneficial both to the environment and the health of the community.

New Research Approaches

The major research effort of last fifty years was primarily concentrated on the pharmacological screening of Indian plants for biological activity. Late R.N. Chopra was a pioneer in this field¹⁸. The approach is still being actively pursued¹⁹. The practical returns, however, have been meagre. We have been following a new approach. We initially concentrate on the clinical screening of Ayurvedic drugs. If early studies are encouraging, placebo controlled and more sophisticated clinical pharmacology is then employed. Recently Vaidya Antarkar and myself found good therapeutic activity of Arogyawardhini in viral hepatitis in a preliminary trial. Currently double-blind trials are in progress. Once clinical evidence is convincing, the efforts in pharmacology and phytochemistry can be started. Even if no active

ingredient may be identified, the contribution of the clinical research stands as a guide to future investigators.

Another interesting approach is to use clinically a plant, whose certain constituents have shown an interesting biochemical activity in animals or in *in vitro* systems. Certain wheat-germ lectins have shown insulin-like activity in isolated tissues. It may be interesting to investigate the clinical possibilities of such a novel effect. Berberine has shown good local anaesthetic activity in animals. Plants containing berberine in significant quantities can be studied in crude for local anesthetic property. This approach can be very fruitful because many experimental observations on plants and herbs are awaiting clinical explorations. Only plants which are known to be safe can be studied clinically.

One productive field of research can be the study of the molecular basis of Ayurvedic drug action. Active plant constituents can be studied for their effects on enzymes, RNA and DNA synthesis, membrane-transport, etc. Molecular biologists, pharmacologists and Ayurvedic scientists have to work as a dedicated team for such research.

Economic and Industrial Aspects

In India, we must concentrate on economical but safe and effective substitutes of many expensive and rare modern drugs. The widespread love of injections has reached quite a pandemic proportion in our country. People have to be re-educated into the habits of good dietary and health regimens. Crude plant products can be presented in more palatable form. New formulations

can be developed which are adaptable to the level of small-scale village industry. All this requires a deep motivation and creative effort by our best minds. But it can be done. Home-remedies can be emphasised and the preparation taught to housewives and teachers. The herbal and plant products are quite suitable for labour-intensive and decentralized small-scale industries. Complete exemption from all taxes, licenses, etc. But making expert supervision mandatory, may attract many idealistic entrepreneurs to such an industry. Forestation and herbal farms must become a national obsession. All media of communication should be effectively employed to achieve this.

People's Medicine :

The lay people often get confused when doctors of diverse 'Pathies' fight and blame each other. To a sick person what matters is a relief from suffering. He does not care about what 'Pathy' procures it. As a consequence, our people with their robust common sense have developed strategies for health-care, which though far from perfect, are quite functional. People's medicine, in India, is a strange admixture of home-remedies, faith-healing, witch-craft and diverse 'Pathies'. This is the reality we have to face. How do we transform such a pot-boiler health system into a scientific yet culturally acceptable and organizationally effective new system? We have to deeply explore the anthropology, sociology, and economics of diverse medical systems and evolve workable adaptations, compatible with the human and humane aspects of patient care. Placebo does have a place in therapeutics when at least

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the physician knowingly and purposely uses it. But an entire system based on mere placebo cannot have any place in modern times. Some decisions will be painful. But in the interest of the patient, we will have to scientifically compare the efficacy and safety of drugs of diverse 'Pathies'. Much useless junk persists in all the systems of medicine. Ruthless and objective clinical research can only assist in the development of a respectable people's of medicine in India.

In conclusion, a coherent synthesis of the diverse systems is possible by promoting fertile interactions among open-minded and motivated experts of diverse systems of medicine. Ayurveda can continue to provide valuable ideas for research in basic and applied biomedical research. But this would be possible when Ayurveda undergoes a basic transformation. Ayurveda has to become Ayur—Vigyan. Scriptural authenticity has to willingly be transfigured into heuristic scientific corpus by dedicated and original research by hundreds of scientists. Ayurveda had a glorious past. Ayurvigyan will have a more glorious future in the service of the suffering humanity.



Of course, the capitation fee for our medical course includes charges for a passport, visa and emigration formalities...

Doctors in the Drug Industry's Pocket

A Student Group*

In 1973, the entire drug industry spent an average of \$ 4500 on each practising physician (in U.S.A.) for advertising and promotion.

—Ivan Illich in 'Limits to Medicine'

The drug industry works hard to contact and influence students throughout their medical education. In the classroom, drug companies reach students by providing films, slides, speakers, research grants, and even pharmacology teachers. Drug advertising dominates the pages and budgets of medical journals. From the time they enter medical school, students are bombarded with *gifts* of stethoscopes, reflex hammers, pamphlets and books, culminating at graduation with engraved black bags to keep it all in. Many medical students accept these gifts, and most do so uncritically. Students find these contributions benevolent, helpful, or at worst, innocuous. We

* This article was written by a group of Nursing and Medical Students from U.S.A., Called the Concerned Rush Students.

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think it is crucial to ask why drug companies are so interested in medical students and to analyse the goals and effects of the industry's *generosity*.

We must understand that the drug companies' "educational resources", their advertising, and their sales—people all have the same ultimate goal: maximization of profits. To quote Dr. Dale Console, former medical director of the E.R. Squibb & Son drug firm:

"It seems impossible to convince my medical brethren that drug company executives and detailmen** are either shrewd businessmen or shrewd salesmen, never philanthropists. They make investments not gifts."

Their gifts, literature, advertising are designed to influence the future medical and prescribing practices of students. These companies know that by the time they receive their degrees, students have well-formed prescribing habits. The industry attempts to establish itself as a legitimate purveyor of information, and as a result, students gain confidence in its products, dependence on its literature and quickly learn the *pill for every ill* concept of health care.

If any student or practising physician were offered \$ 5000 per year in return for pushing drug industry products, he or she would probably shrink in horror at the prospect of such a bribe. Yet, on the whole, the industry has been remarkably successful in achieving its goals. In return for their \$ 5000 annual investment in advertising per doctor, the industry is able to induce an 89% rate of brand name prescribing, and many millions of dollars of necessary drug prescriptions.

** Detailmen are medical representatives.

DOCTORS IN THE DRUG INDUSTRY'S POCKET

What are the steps in the process which allow the drug companies such influence over doctors? First of all, by opening its doors to the drug company gifts, literature, and representatives, medical schools sanction the legitimate and established place of the drug industry in medical education. The individual beginning medical school is anxious, insecure and uncertain about expected performance and behaviour. These initial gifts can convey a sense of importance and identity. Furthermore, these gifts are practical and helpful aids for learning medicine. Students delude themselves by believing they are outwitting the drug industry because they are giving nothing in return for these gifts. However, the *rip-off* of the drug industry by the students is a carefully devised strategy on the part of the industry, calculated to maximize the effectiveness of their own *rip-off* of the American public.

The two essential characteristics of the interactions between medical students and the drug industry are that the student/doctor increasingly (1) depends upon the drug companies as a source of medical information and (2) accepts passively the industry's priorities and directions. The drug industry's strategy is sometimes subtle, but almost always effective. The process is a series of gradual changes for the student becoming a doctor. Students insist that they are fully aware of their own intentions and the drug companies' involvement with the industry. Eventually, many doctors do give their patients samples of the slickly packaged starter-kits left by the detailmen, as well as writing prescriptions for the same expensive brand-name product rather than a less expensive generic one.

We can clearly see that the industry designs its strategy so that no single conscious decision needs to be made by the student to enter into the collusion. It becomes easy for students to deny the reality of this process. When confronted with their complicity, most see the issue as only their individual choice and right to receive a certain gift or prescribe a certain drug. We feel that this view must be challenged so that the drug industry's manipulations will be exposed and so that the medical students and doctors will begin to take responsibility for their actions.

Generic versus Brand Names

One of the ways that the profit motive of the drug industry distorts health care is illustrated by the issue of generic and brand names. The brand name is usually shorter, catchier, and easier to remember. An example of a generic name is chlordiazepoxide, which most people know by the company's brand name, Librium. For the seventeen years of patent monopoly, only the company that developed the drug can market it under either name. After the patent has expired, other companies can market the drug, but only under the generic name or a new brand name; the original brand name is permanently owned by the company that developed it.

Drug companies invest heavily in advertising their brand names to permanently imprint them on people's minds. Thus, even when the patent expires and other companies start marketing the drug at much lower prices under the generic name, the company continues its monopoly on the market. The drug company's gain, however, is the consumer's loss—brand name products are con-

sistently more expensive than generic name products, sometimes 10-20 times more costly.

Each time we write or say a brand name, we should examine the origins of the habit. All legitimate sources of information, including pharmacology textbooks, medicine and nursing textbooks, and respected medical journals (e.g. The New England Journal of Medicine) refer the drugs by their generic names.

Through these sources, students can learn about drugs in a systematic fashion, relating the mechanisms of action, uses and side effects to the particular class of drugs. For example, the name sulfoxazole helps health workers think about the sulfa group of antibiotics. Then why does everyone learn the name Gantrisin instead of sulfoxazole? Brand names are infused into the medical vocabulary through thousands of pages of drug ads, glossy educational booklets and well-labeled giveaways such as pens, rulers, prescription pads, and tourniquets. Students themselves become walking billboards, their pockets stuffed with these trinkets advertising brand-name drugs. None of these sources contribute to a rational, balanced understanding of the products. In fact, their success depends on their ability to do just the opposite. Students learn brand names both directly from these sources and indirectly from their teachers (residents and attendings) whose drug habits have the same origins, thus perpetuating the vicious cycle.

The drug industry argues that generic drugs are inferior to brand-name products. In sitting through the industry's propaganda, we find that their charge of inferiority takes two forms: (1) innuendoes relating to inferior quality, such as impurities and lack of potency of

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the chemicals produced, and (2) differences in biological actions inside the body, that is, bioequivalence or therapeutic equivalence.

Current Food and Drug Administration regulations demand that generic and brand-name drugs be chemically identical. In implementing these regulations, the F.D.A. has found essentially equal percentages of brand and generic products failing to meet potency requirements. In 1972 Dr. Henry E. Simmons, director of the F.D.A.'s Bureau of Drugs in summarizing thousands of tests conducted by his agency, stated, "We cannot conclude that there is a significant difference between the generic and brand name products".

In arguing that there are variations in "bioequivalence" among differing brands of the same product, they mostly contend that different brands achieve different blood levels ("bioavailability"). In some cases they claim a better therapeutic effect for the brand name product, despite identical blood levels. Meaningful clinical differences in bioavailability have been demonstrated in very few drugs. One example considered to be the most important and certainly the most highly publicized is among brands of digoxin (a digitalis derived heart drug). The industry argues that this worrisome evidence of variations in bioavailability among digoxin products justifies physicians' fears of generic drugs. To examine this question, a study was recently conducted of prescriptions written at Rush-Presbyterian-St. Luke's Hospital, a major academic teaching hospital. Despite the fact the hospital's physicians and medical students were aware of the digoxin issue, the drug was prescribed generically 90% of the time! For

DOCTORS IN THE DRUG INDUSTRY'S POCKET

all of the other drugs prescribed in the hospital, brand names were used for 2/3 of the prescriptions. The study concluded that "bioavailability has little to do with reasons students and doctors use brand names."

The drug companies have used this whole issue as a smokescreen for the real issues—rational prescribing, drug costs, and profits. For years they have opposed virtually all attempts to more closely monitor the quality, safety and effectiveness of drugs. Now the industry is hypocritically leading a crusade to protect the public from the "risks of variations in bioequivalence." Rather than making a meaningful contribution toward ensuring bioequivalence among identical chemical products, they have exploited the issue. Their efforts are directed towards mystifying the problem, leaving health workers and patients sufficiently confused that they can do nothing but trust the reputation of the name brands. What is needed, instead of trust, is unbiased, constructive research on the biological effects of drugs.

Prescribing drugs by generic rather than brand name will not solve all the problems related to drug costs, nor will it solve the abuses inherent in drug production for profits. It would, however, reduce the industry's ability to fix prices, thus saving consumers millions of dollars per year. More importantly, struggling against the monopolistic power of the industry can reduce their influence over the practice of medicine and further the movement toward "medicine for the people."

Drug Industry Alliance with the Medical Profession

In every hospital, the drug companies push their products daily in the form of Physician's Desk Reference

(PDR). The PDR is the bible of prescription medicine, distributed free to most physicians, and found on the wards of every hospital. According to one AMA survey, the PDR is more important in dictating prescribing practices of doctors than all other forms of drug company advertising. In fact, many people are surprised to learn that the PDR is not a reference of unquestionable objectivity, but actually a collection of *paid advertisements*. Even though these drug descriptions must correspond to FDA regulations, the presence or absence of a substance in the listings indicates nothing more than the willingness of a company to pay for the inclusion. Inexpensive generic preparations are rarely included in this official looking volume.

In contrast to the insidious influence of the PDR is the aggressive salesmanship of the detailman. There is approximately one detailman for every ten practising doctors in the United States. So at an average of \$ 25,000 per year, detailmen cost consumers \$ 600 million per year. Detailmen are present in most hospitals and serve as walking advertisements for their brandname products. Free of the restraints of government review of written advertisements, these drug pushers can cajole, smile and handshake their drugs to doctors. They have become a fixture in almost every medical setting, armed with free samples and ready to talk with the first white coated person they see. They are selected for their good looks and gregarious nature, and use standard sales techniques to encourage the use of more drugs. Physicians often see detailmen as a convenient source of quick information on new drugs, ignoring the strong bias introduced by the detailman's desire to sell and increase his commission.

Detailmen are trained to make the art of selling *appear educational*.

Drug industry's influence on medicine is not confined to the PDR and detailmen. The industry sponsors millions of dollars of research in universities, medical centers, and private laboratories. This control greatly influences the priorities of medical research. Researchers, competing for drug industry grants, must demonstrate that their work will be worthwhile to the company. Since the company's interest is in recouping its investment, it encourages research in those areas most likely to be profitable, and not necessarily those areas most in need of additional research. For example, there is a tendency to concentrate in fields already fully explored, with the hope of reaping quick short-term profits, such as diuretics or antibiotics.

The industry influence creates an environment where scientific data become *trade secrets*. Thus, efforts are duplicated and results are not shared. The latter sometimes delays the recognition of serious side effects that would be apparent from pooled data. Furthermore, academic institutions which depend heavily on drug company research money are reluctant to challenge the company's practices in their hospitals (e.g. by banning detailmen) for fear of jeopardizing this support. In short, the advancement of scientific knowledge is strongly shaped by the industry's power and goals.

It seems obvious that the aims of good patient-oriented doctors are very different from the aims of the drug manufacturers. The manufacturers wish to maximize their profits by encouraging doctors to write as many prescriptions as possible, for the most expensive drugs. Good doctors, on the other hand, should want to minimize

HEALTH CARE : WHICH WAY TO GO ?

writing prescriptions and should do all they can to keep the cost of necessary medications as low as possible. It is therefore disconcerting to uncover the coziness between the medical profession and the drug industry.

The separate *competitive* drug firms work together to protect their image and influence through an organization called the Pharmaceutical Manufacturers Association (PMA). During the past fifteen years the PMA has been closely allied with its counterpart in the medical establishment, the AMA. The president of the PMA, C. Joseph Stetler, was formerly general counsel to the AMA for 12 years. The AMA relies heavily on PMA financial support through drug company advertising in all of its journals. In 1973, this advertising support represented 26% of the total income of the AMA. Similarly, the AMA's retirement fund in 1973 owned stock in 16 companies in the drug or health-care fields. The AMA is even an *associate member* of the Pharmaceutical Manufacturers Association.

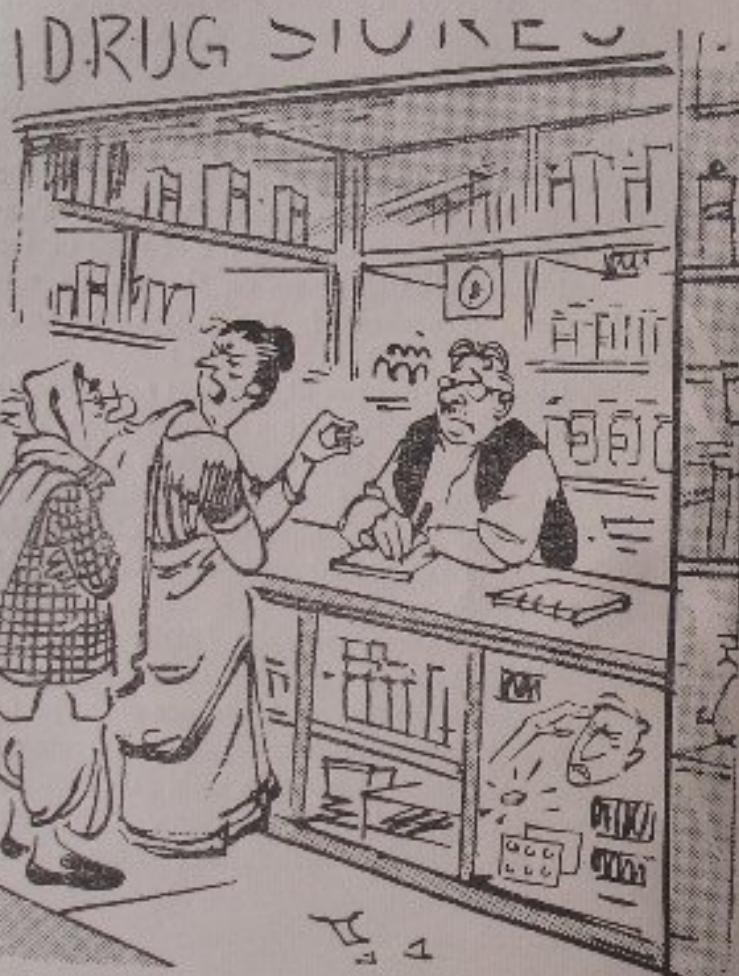
In return, the AMA has used its powerful well-endowed legislative lobby to support the drug companies' interests. In 1967 and 1970, they openly and successfully lobbied against passage of a measure sponsored by Senator Russell Long to establish a system of generic prescribing of drugs. This lobbying process included not only *talking* to members of Congress, but also making considerable financial contributions to their campaigns. Since direct political contributions are illegal, the AMA set up the "Physicians Committee for Good Government in the District of Columbia", channeling funds via this committee to individual campaigns. In the 1972 elections, the AMA was the second leading contributor to campaigns.

DOCTORS IN THE DRUG INDUSTRY'S POCKET

In 1972, the AMA-PMA alliance was made even more manifest in the abolition of one of the AMA's most vital committees, the Council on Drugs. This committee evaluated all drugs, and published the comprehensive AMA Drug Evaluations, a book many physicians looked to as an independent source of drug information. In the final draft of the second edition of AMA Drug Evaluations, the committee stated that the use of some of the most profitable prescription drugs on the market was *irrational and not recommended*. The past chairman of the committee summarizes what happened :

"...they (the AMA) did not like the *not recommended* phrases we included in the evaluation of some drugs. They also wanted us to send the book to the drug companies for evaluation. Because we refused, they dissolved the committee". The second and final edition of the AMA Drug Evaluations was published with these *objectionable* recommendations deleted.

Thus, in each of these examples (PDR, detailmen, research, the PMA) we can see the incompatibility of patients' interests and the powerful influence of the profit-oriented drug industry. Those examples do not represent cheap shots at some isolated scandals within the industry. Rather they reflect, the daily interactions, both at an individual and an organizational level between doctors and the drug industry.



Expensive, yes, but the doctor says you have got to take a couple of these pills—we will have to put off paying the house rent, the grocer, the milkman—!

3

Drug Prescription : Service to Whom ?

Veena Shatruघ्रा

What are the implications of drug prescriptions? Do we ever try to think and relate the cost of the drugs and the profits of the companies with the poverty of our people? We look at the "disease", not at the person who lives in poverty, insanitary surroundings, working longer hours in dangerous situations. We cannot treat the disease with costly drugs without changing the conditions that favour its recurrence. In spite of this the doctors seem to take recourse to administering costly drugs.

The following is my experience in the outpatient department of a Maternity Hospital. Almost every day I saw patients waiting in, searching for someone who would talk to them. These patients had been earlier admitted to the same hospital either for a child birth, a

complication during pregnancy or an operation (usually a sterilization operation). On discharge they were sent home with a discharge card (DC) with details of illness, treatment received and a prescription of medicine running into 3-4 drugs which had to be bought. One look at the list of medicines and another one at the patient's hollow cheeks and the torn dirty clothes made one wonder whether doctors ever looked at their patients before writing a list of drugs that are at best placebos. When the patients were asked whether they had bought the drugs, we received vague nods. Usually they tried to hide their wretched poverty and even bluffed "Yes—I have bought them" or "I will buy them" etc. On further probing they would break down and confess that they could not afford it. They would instead ask for something from the hospital. What did all this mean? Were the doctors justified in prescribing drugs that had to be bought? The profession that comes in touch with naked poverty day-in and day-out does not ever reflect on these gross social crimes. To further mock at the poor, doctors ask them to buy medicine worth sometimes as much as fifty rupees to relieve the pain that society had inflicted. The experience was truly painful.

I decided to go into this more methodically. Hence, we registered 90 women who had their discharge cards intact and elicited the following information. (1) Income (2) Number of Children (3) Reason for their admission to the hospital (4) Operation if any, (5) Whether they were aware of any medicines written on the DC, (6) Whether they had bought any of the prescribed medicines. If the patient said yes to Q-6, this was further checked by asking her to describe in detail the type of medicine (Whether

tablet, capsule, tonic etc) the colour and number. This was necessary to eliminate false positive answers by the sensitive few.

Of the 90 women only 26 bought all the drugs that were written on the DC. 27 did not have enough money and hence bought the first two on the list (invariably a tonic and B-Complex capsules). 37 did not buy any medicines on discharge. The fact that they returned for check up means they still had some problems but inspite of it could not buy the medicines. The great majority who felt no need for a follow up and hence did not return must have had a larger percentage who never bought any medicines.

Of the 53 who bought medicines (complete or partial) 38 of them had family income more than Rs. 300/- p.m. of the remaining 15, with income less than Rs. 300/- p.m. 12 had undergone some operations. (In the event of an operation, patients are known to even buy medicines on loan, drink tonics and continue to avoid rice and dal, staple diet in this part of the country, the belief being that rice generates pus in the wound). Of the 37 who did not buy any medicine, only 9 had any operations performed on them, 25 of them had income less than Rs. 300/- p.m. The retail cost of the prescription ranged from Rs. 8 to Rs. 45. Of those who bought medicines, 4 confessed to have taken loans from money-lenders. A few of them said that the hundred rupees given as compensation for the sterilization operation was used for the medicines. One woman saved-up her son's daily wages (Rs. 4 per day) and gave him broken rice to eat for a week. Her list of drugs consisted of 2 tonics and 20 B-Complex Capsules.

The plight of those who bought only part of the

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medicines was worse. One lady whose child had died at birth came back with engorged and infected breasts due to accumulation of milk. The medicine that would have relieved her was written at the end of the list. By the time her husband bought the tonic and a few tablets, his money was exhausted. A similar story is of an operation wound which had become a draining hole because the needed antibiotic was the 5th medicine on the list. The first 4 were tonics, multivitamin drops for the baby, and aspirin.

Among those who did not buy any medicines a few were genuinely surprised that they had to buy medicines. They just did not know that medicines were prescribed on their DC. In fact one patient was so sure of this that she went straight to her private practitioner after discharge and took 5 injections of B¹ B⁶ B¹² (Rs. 5 per Injection). She had been admitted for false pains and discharged the next day. Her list of medicines had one tonic and one antispasmodic. The rest of the women said that they just could not afford to buy medicines. In this group we noticed that on a check up, the doctor concerned had written another list of 2-3 medicines without finding out if the patient had taken the earlier list of medicines.

It also appeared that doctors rarely studied the case sheet of the patient to be discharged. A mother whose child had died at birth had on her DC, 2 popular Vitamin drops meant for a new born child ! The list of drugs were uniform and ritualistically the doctors wrote down their favourite brand of tonic, capsules, and vitamin drops.

The patient who spends the whole morning in a hospi-

DRUG PRESCRIPTION : SERVICE TO WHOM ?

tal queue, finds after return from the doctor's cursory examination that all her pain and agony of weeks was transformed into a mere piece of paper-the mighty prescription !!

Are the doctors there to help the patients or the drug companies ?

See Appendix I for some more material on Drug Section.



*The black pea (*Lathyrus*) with its yellow flour
From eating its flour comes the trouble in the legs,
The man walks with flapping top knot and swaying hips
Behold the ill-effects of Matra.*

A Folk Verse

4

Kissa Khesari Ka (*Story of Lathyrism*)

Kamala S. Jaya Rao

Of the nutritional diseases present in a country, some are seen throughout and may be considered to be universal in nature. Others are confined to only certain regions and are referred to as endemic nutritional disorders. Endemic diseases are defined as those which are present indefinitely or continuously in a localised geographic area. But another feature peculiar to endemic nutritional disorders in our country is that they are generally to be seen only among the poor. The question is why? Is that not a naive question, if not downright stupid? Who does not know the answer? The people are ignorant, superstitious, have food taboos and hence they do not eat proper food. Of course, they also do not have money to buy enough

food. Hence, they suffer from all sorts of deficiency diseases. But you see, I am not talking of such diseases at all. I am referring to those which people, I mean the poor ones, get because they eat food. Does that sound strange ? What I specifically have in mind today is what I would like to refer to as the story of neurolathyrism, or if you want it in Hindi—Kissa Khesari Ka.

What is neurolathyrism ?

Neurolathyrism is a neurological disorder characterised by a progressive, spastic paralysis of the lower limbs. The most unfortunate part of the disease is that its peak incidence is between 11 and 35 year of age, thus turning young men into permanent cripples. I say young men because the disease affects males ten times more than the females.

The Clinical Picture

In a large number of patients, the disease has an acute onset. In others, it may progress through subacute or insidious stages. The patient experiences a sudden severe pain in his calf muscles and sometimes, in the posterior of the thighs. The muscles go into spasmodic contractions and this is known as '*lodka*'. This is followed by stiffness, genuflexion and the patient finds it difficult to walk. Paralysis sets in either within a week or two of the attack (acute type) or after some months (subacute type).

The patient walks awkwardly with jerky movements and develops a sort of scissors gait. Later, the patient may need the help of a stick to walk and still later, two sticks to support himself. In the final stages, the stiffness of limbs and the bending of knees is so great that he can

move only by crawling or by dragging himself on the ground.¹

Where does neurolathyrism occur ?

The disease is seen in Bihar, south-east parts of U.P., and some northern districts of M.P. The first report of an outbreak of the disease in India in the Sagar district of M.P., was made by a British officer General Sheeman in 1884. Subsequent reports have come from various places in U.P., M.P., and Bengal. The ICMR carried out an extensive survey in Rewa (M.P.) and the report² remains a classic today (despite all the spelling mistakes it contains). I will therefore use this as the main source for my story. From 1884 till the present day the causes leading to the disease have remained practically unchanged. A proof that Bharat can maintain its traditions through the ages ! Rewa and Satna in MP are considered to be endemic areas in India, probably because they were brought into the limelight by the ICMR. I am sure that there continues to exist endemic foci even in U.P. and Bihar.

What causes the disease ?

The answer on the surface seems simple. Eating the seeds of *Lathyrus Sativus* is the cause. However, the answer is not that simple because the question arises as to why the people eat the seeds. Before that, the question—WHAT IS *LATHYRUS SATIVUS* ?

Lathyrus sativus is a legume which is extensively cultivated in Madhya Pradesh, Bihar and to some extent in Uttar Pradesh, Bengal, Andhra Pradesh and Maharashtra.^{1,2} It is known locally as *Khesari*, *Teora Matra*,

takh, lankalu, etc. It has become notorious as *Khesari*. The seeds are grey in colour and are sometimes mottled. The dehusked seeds or the dal resembles *chana* (bengal gram) and *arhar* (red gram), and is also used for adulterating *besan* (bengal gram flour).

The local population which suffers from lathyrism is totally and painfully aware that eating *khesari* cripples them. Thus they are not ignorant. Why then do they grow *L. Sativus* and why do they continue to eat its seeds?

The Cultivation of *Lathyrus Sativus*

I would like to mention here that henceforth I will talk only of Madhya Pradesh, for reasons mentioned earlier. The survey by the ICMR was carried out in 1959-1960, and some changes might possibly have occurred subsequently. I therefore stand corrected if any statement I make or quote is in variance with the existing situation. But the difference, if any, will be of a minor nature and will not in any way alter the content of my story.

Rewa and Satna have a good soil and a good rainfall, and grow rice and wheat in equal proportions. I hope the readers are aware of the mixed rotation system of crops, in which the harvest of the main cereal crop is followed by a legume crop. Generally *chana* or *arhar* is taken in the rotation pulse crop. When the paddy crop is of a long duration and the season has advanced too far for *chana*, *L. Sativus* can be easily taken in rotation.⁴ The people have however found other advantages with *lathyrus*:

1. It is not affected by excess water at the time of sowing,

KISSA KHESARI KA

2. It is not affected by shortage of water during the growing season,
3. It can grow in soils which become hard after paddy harvest,
4. It can be raised as a drought crop,
5. Volume by volume, the seeds are heavier than wheat or barley.

Thus *lathyrus* is cultivated because it can grow under extremely adverse agricultural and climatic conditions. In Rewa, nearly 19000 acres of land were said to be under *lathyrus* cultivation. Yet, not all those who grow *lathyrus*, suffer from neurolathyrism. On the other hand, those who do not grow it (or for that matter, do not grow anything) suffer from the disease. That my friends, is the main thread of my story....because those who suffer, if you have already guessed it, are the poorest of the poor.

The Story

In 1960, more than 75% of the rural population of Bhagelkhand, of which Rewa and Satna form a part, were labourers.⁵ They were mostly *Kols*, *Chamars* and *Kachis*. Many families were in bonded labour. The wages of the labourers are usually paid in kind, in the form of food grains, which is known as '*birra*'. This consists of a mixture of wheat, barley, *chana* and *khesari*. The *birra* is ground into flour and made into *chapatties*.

Lathyrism is very common in this landless group, with many families having more than one victim. The landowners are a minority, numerically, and needless to say that the disease is very rare among them. The middle group are either small landowners or do share cropping with the big landowners. *Lathyrism* is also seen in this

group though not as commonly as in the landless class.

As mentioned earlier, experience has taught the farmers that *L. sativus* can grow under hostile agricultural and climatic conditions. Apart from providing protection against natural calamities, *lathyrus sativus* comes in handy for the landowners to distribute the seeds amongst the labourers in lieu of their wages for more than one reason :

- (a)it does not require labour, irrigation and manuring
- (b) volume by volume, *lathyrus sativus* is heavier than wheat or bengal gram.²

Moreover, "Lathyrus sativus, due to its cheap money value, has become the chief means in the hands of the rich to feed the poor and to.....extract work"

All reports of outbreaks of neurolathyrism pointed out that the disease occurred only among the landless labourers, that the payment was generally received in kind as *birra* (also known as *bejhar*) and that *lathyrus* formed anywhere from 25—90% of the mixture of food grains³ ? . The investigators of the Rewa outbreak concluded that diet providing more than 40% of *lathyrus* and consumed for atleast six weeks, can lead to the overt manifestations of the disease.

In Madhya Pradesh, the *kharif* crop is harvested in October-November and people get rice and wheat for consumption. As time passes, they consume more and more of *lathyrus* as the availability of cereals becomes less. *Lathyrus sativus* is a *rabi* crop sown along with wheat and chana, and is harvested in February-March. *Birra* between May and September was found to contain

not less than 50% *lathyrus sativus*. The incidence of neurolathyrism was found to be highest between July and September. During a drought period, it was found that *birra* contained upto 75% *lathyrus*. "Only landowners and...middle class peasantry could save wheat and gram for their consumption. The poor labourer class had to subsist on *Lathyrus sativus* only."⁴

At the outset, let me admit that I do not know what efforts the government has undertaken to prevent neuro-lathyrism in the country or whether it has or has not accepted the recommendations of the ICMR. I do not know whether the incidence of the disease has come down or increased in these years. Discussions on this condition at scientific meeting or scientific and lay articles on the subject have never been followed by the statement from any quarters that the disease has disappeared or has been on the decline. Thus, one may conclude safely that the situation exists *status quo*. On the other hand, a fresh outbreak of the disease has been reported from Madhya Pradesh in 1974.⁵

The Government's Action

The government of India issued a ban under rule 44-A of Prevention of Food Adulteration, in 1961. "No person in any state shall with effect from such date as the State Government concerned may by notification in the Official Gazette specify in this behalf, sell or offer or expose for sale, or have in his possession for the purpose of sale under any description or for use as an ingredient in the preparation of any article of food intended for sale—with special reference to *khesari* (*Lathyrus sativus*) or its dal or a mixture of *khesari* with bengal

gram or any other gram."

Have you read the above notification carefully? I do not know whether the government of M.P., U.P. and Bihar did notify in their Official Gazette, the date on which the ban should come into effect. Assuming they have done so, if you have read carefully, the rule prohibits the *sale* of khesari but not its cultivation nor it being given as wages.

I do not know whether irrigation projects on the two rivers, as recommended by the ICMR team, have been undertaken with a view to facilitate bringing more area under better food crops.

For reasons discussed earlier, one may safely assume that whatever steps the government had taken, if any, were not effective.

The Scientist's Contribution

The scientists, on the other hand, have been more active; or, being one of the flock, I am probably more aware of their 'achievements'. Some of these are classical examples of how intellectuals can function from their ivory towers, totally ignoring the socio-economic realities of a situation. Many a time we even believe that the solutions worked out by us are the right ones.

It is thus found that *lathyrus sativus* is a hardy crop, which can grow under circumstances which the more 'sophisticated' crops cannot withstand. Thus it is what is known as a life saving subsistence crop (whether the life, as it remains after eating *lathyrus*, is worth saving being an entirely different question). India, one should remember, is the land of *ahimsa*, a word freely translated into English as non-killing). This advantage of *lathyrus*

sativus being a drought crop has turned into a fortune for the landowners and a gross misfortune for the landless.

The Recommendations

The investigating team of the ICMR survey² made some recommendations for prevention and prefaced these by the statement, "the disease is not only a public health problem, but that it also involves socio-economic and agricultural problems prevailing in the population.

The problem of lathyrism is a challenge to *all those who are interested in the promotion of health and welfare of the people of this region*" (the emphasis is mine). In fact, but for the occasional off-key note where the authors imply that the people may prefer to eat *lathyrus*, I consider the ICMR monograph a brilliant essay.

The recommendations include the following :

1. Banning of the crop—"An important practical difficulty would be to provide the people an alternative, suitable crop in place of *Lathyrus sativus*." "Lentil, bengal gram and jowar were also suggested. These crops are already in the region."

2. *Lathyrus sativus* be gradually withdrawn in exchange of wheat or other suitable cereals.

3. Improvement in agricultural methods—"lack of irrigation is the main problem and is the main cause of practice of *lathyrus sativus* cultivation. There are two great rivers, the Tons and the Son, which can be used to develop canal irrigation. Digging of wells and tube wells should also be considered.

4. *Lathyrus sativus* should not form more than 25% of the total diet.

The Follow up

Till now, the story was concerned with the discovery of the disease and its causes. The next important thing naturally is to know what has happened in the fifteen years following the ICMR survey in Rewa; a simple answer would be—nothing. Yet, that is not entirely true. Something has been done; but how much has it helped? We will look into this issue in two parts—action by the scientists.

1. At the outset, the scientists had taken the stand that banning the crop is not possible. The agricultural scientists may have had good reasons for stating, "it has been found difficult to get hold of a satisfactory substitute crop."⁴ However, one does not know on what basis the nutritionists have stated, "Effective implementation of such measures is not easy. The cultivation of lathyrus has been deeply rooted in the prevailing agroeconomy of the region, providing a food suitable to the dietary habits and economic level of the poor segments of population?" (emphasis mine). In making this statement, the fact that those who eat *lathyrus sativus* are not interested in growing it and that their food habits have been forced upon them are totally forgotten.

2. The agricultural scientists have also not said whether and why the recommendations of the ICMR² for bringing more area under lentil (masur) chana and jowar and for increasing irrigation facilities, are not feasible. They have indicated that masur has good possibilities of a substitute crop.⁴ How far this has been followed up, is not known.

3. A negative attitude has been taken also towards decreasing the quantity of *lathyrus* seeds in the 'birra'.

"It has also been suggested that the *lathyrus* seeds produced could be diluted with wheat or barley so that the effective intake of *lathyrus* would not exceed more than 30% of the total diet. This suggestion too may be expected to have many practical difficulties."⁹ Such as what and why has not been specified. Having thus taken a stand, which though not spelt out so clearly is very much implied, that there are no socio-economic solutions to a socio-economic problem, the scientists had then proceeded to seek and offer their own solutions.

(a) Biochemists very eagerly sought to identify the toxic factor in the seeds of *Lathyrus sativus* and to establish its chemical nature. They succeeded in their venture.¹⁰ The work though significant, is largely academic. We may let it be, since it is not of direct relevance to the present discussion. The offshoots of this discovery, on the other hand, are of greater significance.

(b) Agricultural scientists have tried to identify strains of *lathyrus sativus* with low toxin content. They have claimed some success in this.¹¹ If this is true and if this continues to work, this would probably be a good achievement. However those who have some knowledge of agricultural science will know that such solutions are accompanied by problems of their own.

(c) Methods have been suggested by which the toxin can be removed from the seeds by simple cooking procedures. It is stated, "such a procedure would overcome most of the difficulties...and at the same time conserve *lathyrus* seeds as a useful food source"⁹

The local population easily understood this technique of detoxification. The method also did not alter the taste or texture of the *chapatis*. The method is simple and can

be followed by even the most illiterate villager. "However, with all these benefits the home scale method does not appear to be practicable because of the system of daily payment of wages in the form of lathyrus and the agricultural labourers did not get sufficient time to detoxify it... Another problem was the cost of fuel..." Here then was a scientific achievement which failed to take into account the socio-economic realities of the situation...the fact that extra time and fuel would be needed even for a so called simple procedure. Yet, the method continues to and is not considered to have any practical difficulties.

While working out solutions (b) and (c), the scientists have failed to realise that they were placing in the hands of the landowners a powerful tool. Now, the landowners can blame the distributing agencies for not providing them with low-toxin seeds and accuse the labourers as ignorant and lazy, for not utilising a simple solution offered for the relief of their own misery.

This then is the sad story of neurolathyrism in Central India. In 1961 it was estimated that there might be 32,000 cripples in the Rewa and Satna districts alone, giving an incidence of 2.6%. Assuming that no change has occurred, for better or for worse, a rough estimate would be that the numbers would have increased by another 10,000: that is, nearly 1000 fresh cripples would be added to the population every year.

My main reason for discussing this problem is to emphasize once again that most health problems in our country, or for that matter in any other developing country, are basically socio-economic problems. Neurolathyrism is just one example and not something unique. In other parts of the country, there are other nutritional

problems : for example, pellagra and fluorosis in Andhra Pradesh have a similar story. We should remember that whatever preventive measures we wish to offer for a problem should take into account the socio-economic factors of the population. The treatment should not be worse than the cure. The solutions that have so far been offered to the victims of neurolathyrism, in my opinion, will only aid the perpetuation of the situation. It is therefore important that scientists should not offer solutions which will only help the vested interests.

The role of the MFC

1. I hope there are MFC members in M.P., U.P. and Bihar. Could they meet the local population, who are victims of neurolathyrism, and let us know first hand their problems ?
2. Has there been any attempt to improve the irrigation facilities in Rewa and Satna in M.P.? If not, are there real problems or is it just indifference on the part of those who should be responsible for this ?
3. Is it really difficult to grow any crop other than lathyrus in the area ?
4. Has payment of lathyrus in wages been banned or has there been any attempt to do so ?
5. Does the government provide drought relief work to the local population and open fair price shops to sell wheat ? We hear so much about the surplus wheat that is produced. What prevents this being sent to those areas where the labour can buy it with cash received as payment rather than be forced to accept lathyrus seeds as payment—an out-moded, primitive system of barter.

Lastly, whatever the area we may be working in, we

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should enquire from the so called beneficiaries their own reaction to the solutions that are offered to them and not take upon ourselves the role of all-knowing preachers.

As I said earlier, the story of neurolathyrism is only a case in example. Other instances are no less poignant.



“करियत मटरा पियर विचान
पिसान छाथ के गौर नसान
हंले चन्दुर मटके कूल
जा देखो मटरे की सूल !”

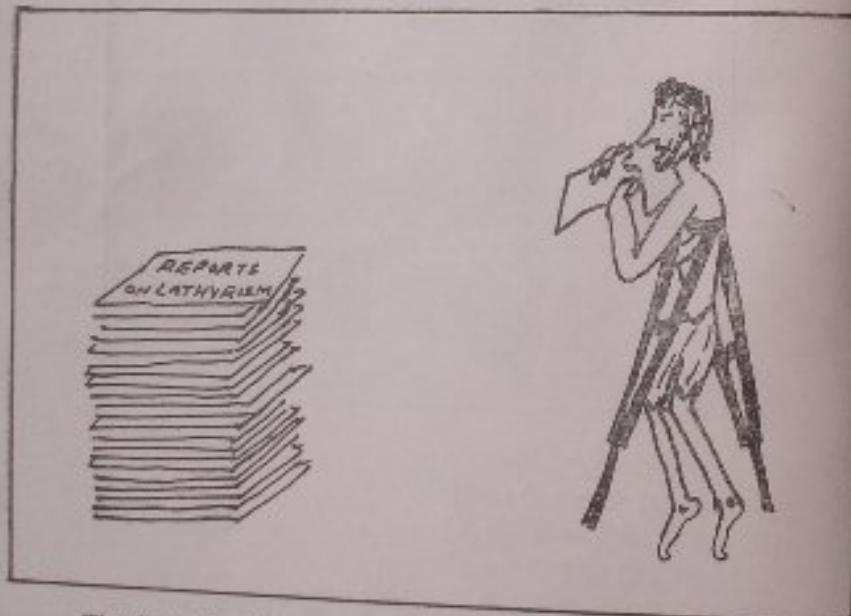
*The black pea (*Lathyrus*) with its yellow flour
From eating its flour comes the trouble in the legs,
The man walks with flapping top knot and swaying hips
Behold the ill-effects of Matra.*

A Folk Verse

Kissa Khesari Camp Ka :

A MFC field study of the situation of Lathyrism, 17 years after the ICMR Report

Luis Barreto



Thanks to the Scientists, I need not eat Lathyrus any more.

It was Kamala Jaya Rao who wrote the article 'Kissa Khesari Ka' in MFC Bulletin (Dec. 77) and brought some new aspects of the problem of Lathyrism to the notice of MFC members. She also raised certain questions about this problem, the answers of which were not available in the contemporary medical literature. This stimulated lot of interest amongst the members of MFC (letter to editor on 'Kissa Khesari Ka' 'Feb. 78) and it was, therefore, decided by MFC to hold a study camp at Rewa. This was a healthy development, as for the first time, MFC members were undertaking a programme born out of the study published in the Bulletin.

The objectives of the camp were:

1. To involve medicos through the issue of Lathyrism into a process of understanding and analysing socio-economic conditions which perpetuate the medical problems.
2. To educate medicos in the very process of study, survey and camp participation.
3. To find out answers of some questions about this problem and on completion of the study, to raise the issue of Lathyrism before the public, medical experts, and the Government and to create public opinion conducive to positive action.

About 30 participants (from Varanasi, Bhopal, Jabalpur, Indore, Hoshangabad, Nagpur, Wardha, Bombay and Hyderabad) arrived at Rewa (M.P.) on 3rd June 78. The gathering was quite heterogeneous and included Nutrition Scientists, doctors, health project workers, Post-Graduate and Under-Graduate medical students, Interns, Agriculture, Law and Science students and journalists. This variety contributed to the richness of experience the participants had.

This Camp was fortunate to have Dr. M.P. Dwivedi himself available in Rewa. He is undoubtedly the authority of Lathyrism in India and has accepted the problem of Lathyrism as his life mission. He oriented the participants about the problem of Lathyrism in Rewa area, its causes and the work done so far. After day's orientation programme at Rewa, the participants went in groups to their base camps at 3 remote villages-Panasi, Chandai and Sonbarsa, and surveyed the villages around for 5 days.

The camp provided the participants an opportunity

to get exposed to a live medical problem, so closely influenced by the socio-economic conditions prevailing in the feudal Society of rural India. It also gave the campers an opportunity to meet the masses and the landlords, and understand the intricacies of exploitation by the latter.

The survey proforma was prepared by Kamala Jaya Rao and Abhay Bang with a view to find out answers to some specific questions. The real issue was "Has the Government done any thing on the lines suggested by the ICMR expert Committee (Ganapathy and Dwivedi in 1961) to end this human tragedy and has the picture of Lathyrism changed in past 17 years?"

The main recommendations of the ICMR team were :

- (1) Banning the cultivation of *Lathyrus sativus*
- (2) *Lathyrus* be gradually withdrawn in exchange of wheat or other suitable cereals
- (3) Improvement in agricultural methods, specially irrigation.
- (4) *Lathyrus* should not form more than 25% of the total diet.

Later on, scientists discovered the detoxification methods and advocated that these methods should be popularised in the area.

In view of these recommendations, Kamala Jaya Rao had raised questions like,

- (1) Has the incidence of Lathyrism changed in past 17 years in endemic areas of Central and Northern India ?
- (2) Have attempts been made to decrease the cultivation of Khesari ? Any improvement in irrigation facilities ?

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- (3) Why do poor people eat Khesari ? Have they been told about the ill effects of Khesari and have they been persuaded to stop eating this pulse ?
- (4) Has the payment of Lathyrus in wages been banned ?
- (5) What are the dominant factors due to which Khesari continues to be cultivated and given in Birri ?
- (6) What are the levels of awareness, attitudes and reactions of the labourers, farmers and landlords to this problem ?

The impressions that one gathered during the survey are as follows :

(A) The area is very much backward in general with low productivity of agriculture, gross unequal distribution of land, strong feudal structure and culture prevalent. The transport and communication facilities are very meagre. There are no alternative opportunities for employment available and hence every landless is forced to become an agricultural labourer with no bargaining power, *with the result that the wages are extremely low—about Rs . 1.25 per day.*

There are virtually no irrigation facilities in the region in spite of Tons river flowing through the middle. No modern methods of farming are available. Only one crop is taken in the year. These factors govern the choice of crop to be grown. Farmers set no other choice but hardy, easy to grow Khesari. Hence cultivation of Khesari continues almost unchanged. An abortive effort was made by M.P. Government to ban the cultivation in 1963, but it immediately retreated on slightest resis-

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tance from the landlords in only one area of M.P.

The participants visited total 16 villages and recorded 117 cases of lathyrism. As the random sampling could not be adhered to because of certain peculiar field problems, the incidence and prevalence of the disease in the whole Rewa district could not be projected on the basis of collected data. But the two parts of the collected data were useful.

(1) Certain information about the 117 detected cases.

(2) Investigation done in the village Rehi.

(B) 117 cases were recorded in 16 villages, but the total number of cases in these villages could be much more because the whole population was not screened. People in the village were asked to enumerate the names of the persons in their village who were suffering from this disease and this method though crude was used for case detection for its obvious simplicity. These victims were then individually contacted, interviewed and examined. Analysis of this data reveals following things.

—Of the 117 cases, 105 (about 93%) were males while only 12 were females.

—Most of them were landless labourers (often Bonded to the landlords because of debt) or small farmers with small piece of dry land. No landlord suffered from the disease. Majority of the victims came from the lowest castes (Kol, Chamar.) Thus the socio-economic bias of the disease was obvious.

—The year of onset of the symptoms was carefully recorded so as to know the temporal pattern. 22.22% had the onset in the past 5 years, 12.82% between 5 to 10

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years ago and 29.40% between 10 to 15 years ago. The years of onset mostly corresponded to the severe droughts in this area indicating that the percentage of Khesari goes high in the drought years.

—Another important fact which came out of the study was that about 65% of the recorded cases had the onset of the disease in the past 15 years i.e. after the ICMR report and recommendations were submitted to the Government. 22.22% of the cases had the onset in last 3 to 5 years clearly indicating that there was no fall in the occurrence of the new cases. This was a true indicator of the efforts put by the Government or the society to control this crime.

—Of 117 cases, 17.88% were latent cases, 55.55% were in non-stick stage, 22.22% in the one stick stage, 3.42% in two stick stage and 1.7 in the crawlers stage. It is possible that the severe cases had died because of inability to support themselves. Similarly the proportion of latent cases is definitely an underestimate because such cases were detected mainly in the Rehi village where whole population was clinically examined. In other villages the cases were detected on the basis of people's information—who obviously couldn't detect an unsymptomatic latent case.

Khesari still formed a substantial portion of their diet, specially in the rainy season.

(C) Rehi was the village selected for indepth investigation. The reasons for the selection of this village were its size which was appropriate to the manpower available for investigation and the availability of local contacts. Every family was visited, interviewed and every person was clinically examined to detect the latent cases.

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The main features of the findings were—In a population of 403, there were 37 cases. Of these 21 (56.77) were symptomatic frank cases and 16 (43.24) *latent cases*, which indicates the possibility of a large percentage of such latent cases in a community of this area, who do not even know that they have the disease and may progress into frank cases in the course of time and perhaps during the next drought.

The prevalence of the disease in Rehi was about 9.18%. In general, the disease seemed to affect the males much more than the females, affecting mainly the 15-45 years age group.

Knowledge about cause of lathyrism was poor. Of the 148 persons interviewed only 2.70% (and these too were educated sons of the landlords), knew that the disease was caused by toxins in *Lathyrus Sativus*, 27.70% knew that it was because of the Khesari. But over 69.59% attributed the disease to varjous other factors like bad weather, rains and chills, fate, excessive work, walking on the edge of the village at night, etc.

We could gather that Khesari was being consumed mainly by poorer class, and by the bonded labourers. The higher caste and the landlords most often did not consume it and even when they did, it was with a lot of other cereals like rice and wheat etc. Hence no question of getting the disease.

The economically backward class had to eat it, because they had not much of a choice, since they were paid in kind—Birri, which is a combination of various cereals of which Khesari is a major component and the percentage of the grain varied with the season and increasing when the drought conditions prevailed. In fact when the area had

droughts for long periods, the workers got only Khesari as payment.

Most of the people interviewed opined that if they had a choice they would definitely eat wheat or rice. Only a small percentage said they would continue to eat Khesari. The interesting reasons for this, was that Khesari satisfied their hunger easily, while other cereals didn't. The other reason given by some of the persons, who had small plots of land, was that Khesari was the only crop, which they could grow in this drought prone area, where irrigation facilities available to them were nil, and possibilities of getting irrigation in the near future were bleak.

In spite of large number of studies and simple methods of detoxification, over 80% of 131 people who were questioned about their knowledge of prevention of the disease, had not even heard that this disease could be prevented. About 16% had heard from their friends and Government officials that it could be prevented and 4% from other people. This gives us a clear indication, that the Government has done very little to spread the wealth of information that is already available. Hardly any of the low toxin varieties had been introduced in the area, nor were there any areas having Central Detoxifying Units nor was steeping or parboiling practised in the area.

Majority of cases belonged to Kol and Harijan castes. The higher castes were hardly affected.

Over 98% of 106 respondents to the question, whether the crop should be banned by the Government opined that it should be banned. The remainder said it should be accompanied with facilities provided by the Government to grow other crops.

Asked about why do they accept Birri with Khesari, most of them admitted, they did so, under compulsion by the landlords, since they were bonded labourers or landless labourers and needed a job for living. If they refused, the landlord might not give them a job the next day and as a result they would have to go hungry. A small percentage replied that they got a sense of fullness and hence accepted the birri.

Asked why the landlords gave Khesari, 24.56%, of the 57 respondents replied that it is cheaper for the landlords to pay in Khesari, than to give other crops, which can be sold in the market, since the latter has better market value. About 24% opined that this was an easy crop for the landlords to grow, it needed little care and investment and could withstand drought conditions. One of them who was affected by the disease said the landlords could not bother to care, if their labourers got the disease, because there was no scarcity of labour in the area, especially during the drought periods, when workers from other villages also come for work. Some said, "we are being slow-poisoned so that we should always remain weak and be dominated."

They get the Birri at the end of the day's hard work and have nothing else in store to eat. Hence there is no time for detoxification by parboiling. This showed the appropriateness of the methods suggested by our Research Institutes.

Some of the landlords who seemed to have an idea of the real nature of the problem invariably pleaded ignorance when faced with the question "Why do you give Khesari in Birri ?" This 'ignorance' some times turned into a vehement opposition to the interview, manifesting

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in refusing to be interviewed, refusing the accommodation to stay or even informing the police to put the participants in the custody. It was interesting to note that a landlord who refused accommodation to the participants had 6 victims of lathyrism among his bonded labourers.

Following the field survey, the campers assembled again in Rewa to share and discuss their observations and experiences. It was obvious to every one that the roots of 'medical' problem were in social structure. Though the participants criticised the organisers for having failed to provide proper accommodation and food arrangements in the villages, it seemed that they had accepted the hardships very sportively. Walking 15-20 Km. every day in the hot sunny summer of central India, sleeping under the trees, starving for the whole day, tolerating insults by landlords, threats from the police, all these formed the memories which they were describing with beaming faces, which were severely tanned in 5 days. It should suffice the readers to understand the spirit of the camp that the participants from Jabalpur themselves contacted their friends in Medical college Rewa for cooperation on this problem and declared "we shall come back with our friends to carry this work still further..."

MFC has been fortunate to receive help from agencies like OXFAM and FREJA and warm cooperation from persons like Dr. Dwivedi, Dr. Gupta, Thakur Prabhakar Singh for this Camp. Sudhendu Patel and Ajay Khare toiled days and night for arrangements.

I am a poet, my father is a doctor and my mother a grinder of corn.

—Rig Veda

6

Who is Malnourished : Mother or the Woman ?

Kamala S. Jaya Rao

Women are half the world's
people . . .



Do two-thirds of the world's
working hours . . .

Receive one tenth of the
world's income . . .



And own only one
hundredth of the world's
property . . .

*"If you do not raise the women,.....
don't think there is any other way to rise."*

—Swami Vivekananda

In the parlance of the nutrition scientists pregnant and lactating women, along with children under five, are referred to as the vulnerable groups. This means that they are most susceptible to the ill-effects of malnutrition. This is because the nutrient requirements go up tremendously during pregnancy and lactation; in fact, more so in lactation, a fact not always well appreciated by clinicians.

Between 15 and 45 years of age, that is, in the 30 year span of reproductive life, an average Indian woman be-

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comes pregnant about 8 times. She may ultimately be left with only 3-5 children because the abortion and still-birth rate is about 15%¹, infant mortality rate is 122 and death rate of children under five is 18 per 1000. Each liveborn infant is breast fed generally up to 2-3 years, and the milk output is quite substantial in the first 18-24 months. Thus, of the total 360 months of reproductive life, 200 months or 50-60% of the time is spent in pregnancy and lactation (Table 1). Of this, some 140 months are completed before the woman reaches 35 years of age². Of the total female population in India, about 50% amounting to nearly 140 million are in this age group³.

TABLE 1

Time spent by an average Indian woman in Pregnancy and Lactation

	Months
Total reproductive life span (15-45 years of age)	360
Total duration of Pregnancies	
7 live-births	63
1 abortion	5
Total average duration of lactation	
1 death in infancy	6
6 survivals beyond 1 year	120
Total time spent in pregnancy and lactation	194

Most of these women are underweight, and their food intake even in the non-pregnant state is extremely poor.

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Although the nutrient requirements go up in pregnancy and lactation, their food intake does not change from what it is in the non-pregnant state. They fail to gain adequate weight during pregnancy and give birth to low weight babies. The incidence of iron deficiency anaemia, vitamin A deficiency and signs of Vitamin B complex deficiency are very high among the pregnant women⁴. The incidence increases with increasing parity⁵. The high incidence of malnutrition, coupled with poor antenatal and obstetric care, results in an extremely high maternal mortality rate, which is around 370⁶. The figure reported from a rural referral centre is staggeringly high—1800⁷. The maternal mortality rates in some countries are compared in Table 2.

TABLE 2

Maternal Mortality Rates in Some Countries
(*Maternal deaths per 100,000 births*)

Sweden	7.7
U.K.	10.7
U.S.A.	12.0
Poland	14.3
Japan	27.6
India	370.0

Sources : References 3 and 6

The nutritional problems of Indian women have therefore been generally considered to be the nutritional problems of pregnant and lactating mothers. Great emphasis

is therefore being placed on feeding programmes for pregnant women, anaemia prophylaxis, family planning etc. Though in themselves these are, no doubt, essential services, the attempt to implement these as nationwide public health programmes is, in my opinion, a shortsighted and narrow approach. The reason is, firstly that in such an approach the female is viewed only in the context of her motherhood and, therefore secondly, the problem is seen in isolation. *The problem should be understood as fundamentally an offshoot of a deeper and more complex malady, namely the inferior status and expendable nature of the female in Indian society.* To understand this let us look at certain facets of female life in India.

The Sex Ratio

The sex ratio (ratio of females to males) in humans is biologically determined to be more than 1000. This is due to the higher life expectancy of the female. A look at Table 3 shows that the sex ratio in India is much lower than 1000 and in fact, the Indian subcontinent gets a very low ranking among various nations. The top ranking of the communist countries should not be interpreted to mean that female life is the best there. This is due to the peculiarity of their recent history. During World War II (1935-1945), many young men died resulting today in extremely small numbers of men above 45 years; this is reflected in an abnormally high sex ratio in these age group, as seen in Table 4.

To compensate for the low life expectancy of the males, normally more male infants are born. In the developed nations there are 40 more boys for every 1000 girls, in the first two decades of life. In India there are

TABLE 3
Sex Ratio in Different Countries

U.S.S.R.	1160	Chile	1026
East Germany	1150	Sweden	1019
Poland	1122	Denmark	1015
West Germany	1096	Thailand	1008
Hungary	1061	Canada	1002
U.S.A.	1054	Kenya	997
U.K.	1053	Argentina	997
Czechoslovakia	1053	Gautemala	992
Switzerland	1051	Australia	991
Spain	1050	Mexico	988
Brazil	1047	Peru	986
France	1044	Uganda	983
Yugoslavia	1033	Bangladesh	962
Zambia	1033	Iran	937
Rumania	1030	India	925
Japan	1030	Pakistan	886
Indonesia	1030		

Source : Reference No. 3

105 more boys. Thus, right from infancy the sex ratio is quite low in India (Table 4). The low sex ratio in India cannot therefore be attributed solely to maternal mortality. A sex ratio of 1000 is reached only after the seventh decade when the population is hardly 2% of the total.

That the low sex ratio is not due to maternal mortality alone, is also evident from age-specific death rates. Although normally male births are higher, male deaths

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are also in excess right from infancy. In India however we see that female death rates are higher (Table 5). At the beginning of this century, despite a deplorably low level, life expectancy of the females was higher than of the males. In the past 40 years, the males have overtaken the females (Table 6). No specific cause could be found for the higher female death rate⁸ and this may be attributed to the negligence and apathy towards the female child. Though protein calorie malnutrition was found to be higher in girls, more boys were brought to the hospital for treatment^{9,10}. Following the adoption of the small family norm, the number of female children has declined markedly; whereas there is a 53% decrease in the number of female children, the number of male children has decreased by only 30%¹¹.

TABLE 6
Life Expectancy at Birth

Different Countries*	Female		Male		Trend in India**	
	Female	Male	Female	Male	Female	Male
U.S.A.	76.5	68.7	1911	23.3	22.6	
Japan	76.0	71.0	1921	20.9	19.4	
Sweden	76.0	70.3	1941	31.4	32.1	
U.S.S.R.	74.0	64.0	1961	40.6	41.9	
U.K.	73.8	67.8	1971	44.2	46.4	
India	48.8	50.1	1976	48.8	50.1	
Pakistan	48.8	53.7 (Projection) (Including Bangladesh)				

*Ref. 3 **Ref. 6

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TABLE 4
Age-Wise Sex Ratio in Different Countries

Age (years) country	<4	5-9	10-14	15-19	20-34	35-44	45-54	55-59	>70
65 U.S.S.R.	965	962	964	960	1012	1106	1610	1963	2445
U.S.A.	957	972	961	974	1015	1053	1069	1156	1560
Japan	956	952	956	958	990	995	1091	1230	1370
U.K.	943	948	948	955	973	973	1020	1143	1006
India	905	903	903	931	934	916	882	892	1000

Figure calculated from data in Reference No. 3

TABLE 5

Age-Specific Death Rates (Sex-wise)

Age (years) country	1	1-4	5-9	10-14	15-19	20-24	25-29	30-34
USSR	M 7.6	0.9	0.7	1.4	2.1	3.2	4.0	5.2
	F 6.3	0.6	0.4	0.6	0.9	1.1	1.4	1.9
Japan	M 11.3	1.0	0.4	0.3	0.9	1.1	1.0	1.3
66	F 8.7	0.7	0.3	0.2	0.3	0.6	0.6	0.8
U.K.	M 18.6	0.7	0.4	0.3	0.9	1.0	0.9	1.1
	F 13.9	0.7	0.2	0.3	0.4	0.4	0.5	0.6
U.S.A.	M 18.3	0.8	0.4	0.3	0.8	0.6	0.5	2.0
	F 14.4	0.6	0.3	0.3	0.6	0.9	0.9	
India	M 120.0	16.0	5.8	3.0	2.1	3.9	3.7	4.1
	F 125.0	20.5	7.7	2.7	4.2	5.5	5.5	6.4
Pakistan	M 196.0	17.0	3.8	1.7	2.2	2.8	0.9	0.4
(including	F 167.0	17.7	1.9	2.7	2.6	4.5	6.6	5.6
Bangladesh)								

TABLE 5 (Continued)

Age (years) country	35-39	40-44	45-49	50-59	60	70	80
USSR	M 6.6	8.4	12.4	22.8	39.4	81.0	
	F 2.6	3.6	5.4	10.4	20.4	60.7	
Japan	M 1.9	3.2	4.6	8.0	23.5	82.5	133
67	F 1.1	1.7	2.5	5.0	12.8	56.5	102
U.K.	M 1.5	2.8	5.2	15.4	32.8	98	149
	F 1.1	1.9	3.4	8.2	16.2	58	101
U.S.A.	M 3.5		8.6	20.3		44	95
	F 1.9		4.6	10.1		22.5	60
India	M 6.5	8.5	13.2	22.4		71.0	
	F 6.0	7.6	9.4	17.8		66.5	
Pakistan	M 3.0	3.9	3.1	11.2	30	39.5	
(including	F 3.1	4.2	9.9	10.3	12	49.5	
Bangladesh)							

Sources: Reference No. 3 and 2

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TABLE 7
Trends in Sex Ratio in India

States	1901	1911	1921	1941	1961	1971
Bihar	1054	1044	1016	996	994	955
Tamil Nadu	1044	1042	1029	1012	992	979
Orissa	1037	1056	1086	1053	1001	989
Kerala	1004	1008	1011	1027	1022	1019
Madhya Pradesh	990	986	974	970	953	941
Andhra Pradesh	985	992	993	980	981	977
Karnataka	983	981	969	960	959	960
Maharashtra	978	966	950	950	936	933
Gujarat	954	946	944	941	940	936
Bengal	945	925	905	852	878	892
Uttar Pradesh	937	915	909	907	909	883
Rajasthan	905	908	896	906	908	914
Punjab	848	807	821	850	854	873
All India	972	964	955	945	941	930

Reference No. 6 and 18

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The Declining Trend

More disconcerting than the low sex ratio is the declining trend in the ratio over the years (Table 7). Right from 1901, the ratio has been steadily declining. Whereas Punjab alone (known to practice deliberate female infanticide) had a ratio less than 900 and four states had ratios above 1000 in 1901, today Kerala alone has a ratio above 1000 and three states have ratios less than 900. Since there is no reason to believe that female mortality has actually increased over the years (and thank God or men for it), it can only be concluded that whatever development has taken place over the past five decades has favoured the males more.

Even Kerala, the most progressive of all states with its high literacy rate and low infant mortality rate, has shown a steady, though small, decline in sex ratio. *Marumakkathayam* or the matrilineal pattern of inheritance was practised by a sizeable section of the population of this state previously. This has been now giving way to the more widely prevalent patrilineal system of inheritance. Whether this could be the cause of the decline in sex ratio in a state which, unlike others, registered an actual increase in the first half of the century needs to be seriously examined.

The Woman as a Worker

The neglect of the female is to be seen in all aspects of life. The work participation ratio of females is only 13% as against 52.5% for males (12). Almost half of them are engaged in unskilled work as agricultural labourers (Table 8). They are employed for shorter periods (Table 9) and are paid less (Table 10). In fact,

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they are treated on par with male children. The high agricultural wages in Punjab and Haryana are attributed to the increased agricultural activity while in Kerala, this is believed to be due to the organization of the labour force¹³. It is, however, apparent that there is no such organisational support for the females.

TABLE 8
Pattern of Employment of Labour Force

Sex	Cultivators	Agricultural labourers	Others
		per cent	
Male	46.4	21.0	32.6
Female	28.0	46.0	26.0

Source : Reference No. 12

TABLE 9
Total days of wage employment in a year
(agricultural labourers)

	Agricultural work	Non-agri- cultural work	Total
Men	217	25	242
Women	149	11	160
Children	207	17	224

Source : Indian Labour Year Book, 1970

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TABLE 10
Average daily earnings of agricultural labourers (Rupees)

	Men	Woman	Boys (below 15 years)
Punjab	4.9	3.5	2.9
Haryana	4.5	2.7	3.0
Kerala	4.1	2.2	—
Uttar Pradesh	2.4	1.6	1.5
Tamil Nadu	2.4	1.5	1.3
Gujarat	2.3	1.7	0.9
Bihar	2.2	1.9	1.8
Maharashtra	2.2	1.3	1.2
Andhra Pradesh	2.1	1.5	1.3
Karnataka	1.9	1.5	1.2
Madhya Pradesh	1.6	1.3	1.2

Source : Ref. No. 13

Traditionally, apart from agriculture, women found gainful employment through household industries. The decline of handicrafts and small-scale industries and the rapid development of the organised sector are pushing the women more towards casual, unskilled labour¹⁴. The rapid mechanization of agriculture and wider use of fertilizers and HYV seeds are also working against female participation. An important, though not the sole, operative factor is the low literacy rate of women which is only 18.4% compared to 39.5% among the males¹⁵. In rural areas the rate is only 13% and in at least 7 states it is less

than 10%¹⁵. These women are unable to participate in the new technologies being introduced and no concerted efforts are made to impart to them any special training. Even those who stress on the importance of rural industries have failed to highlight this aspect.¹⁶

The plight of the urban female is no better. The increasing numbers of women in professional and white-collared jobs have hidden that in the masses women are being displaced from employment¹⁷. Whatever benefits have accrued to women in the past three decades, have gone to those in the high socio-economic groups with a good level of literacy. There are deliberate measures against employment of women in the organized industrial sector. They are employed either in unorganized sectors which brand themselves as small-scale industries or as domestic labour,¹⁸ and in either case the labour is bought very cheap. Thus, the average Indian woman lacks a proper socio-economic status, and she and her life are not of much social consequence.

The nutritional status of any population group is a good reflection of its socio-economic status. Viewed with this perspective, the nutritional problems of Indian women assume an entirely different connotation. The problems do not arise merely out of poverty and ignorance; it has to be viewed in its totality. Neither nutritionists who formulate and recommend the programmes nor the administrators who are responsible for their implementation, appear to view the female first as a woman and an individual, but seem to view her only in her role as a mother. Implied therein is the view that the woman is important only because she is the bearer and nurturer of children.

There is no gainsaying the fact that the nutritional

status and health of Indian women needs improvement. To think, however, that this can be done through welfare programmes such as food distribution and anaemia prophylaxis, is a serious misconception. Equally misconceived is the notion that the programmes will 'succeed' through nutrition education, a wasteful exercise at this juncture. The wisdom of this policy, wherein the woman is viewed mainly as a mother, needs to be questioned and reviewed. The problem must be seen in its entirety. It must be appreciated that motherhood, however significant, is only one aspect of female life. *All along we have devised welfare programmes for women and directed all developmental activity towards men.* This needs to be changed if the nation has to progress. Until and unless deliberate efforts are made to bring women into the mainstream of developmental activity, and to enhance their economic and social utility, all welfare programmes formulated for women in India are bound to be disastrous failures and wasteful expenditures.

**Nurses : The Cursed Women in
Medical System**

Rani Bang



Present Status

"How to motivate doctors to go to rural areas?"
"Appoint beautiful nurses at the Primary Health Centres". was the reply.

Future Potentials

"An auxiliary can treat 90% of children's sickness"—
Rural Health Research Centre Narangwal.

(A) PRESENT STATUS OF NURSES

The facts about the present status of Nurses can be reviewed under (i) Manpower studies, (ii) Training, (iii) Role in health care (iv) Social Status, (v) Sexual exploitation.

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(1) Numerical (Wo) Manpower in Nursing Profession

(a) Category	Number (1971 Census)
General Nurses (G.N.)	68,252
Auxiliary Nurses midwives (ANM)	41,522
Lady Health visitors (LHV)	5,914
	<hr/>
	1,15,688

(b) The Bhore committee

In 1945 recommended a nurse population ratio of 1:500 to be achieved by 1971.

But it was 1 : 4731 in 1971. To reach a nurse population ratio of 1 : 1000 by 1980 and 1 : 500 by 1990, nursing womanpower required will be 6,68,900 and 16,67,600 respectively. The shortfall with the present level of training will be of the order of 4,85,494 and 14,04,902.

The worst nurse-population ratio is in U.P., Bihar and Orissa :—

1 Nurse : 18 to 19 thousand population.

(c) Rural and Urban distribution

Rural	Urban
Population 80%	20 %
Nurses 40% (46247)	60 % (69441)

(d) Nurse—doctor ratio

In 1971, this was 1 : 2.3

The ideal one is 3 : 1 (Sweden)

To achieve this ideal by 1990, there will be a deficit of 7,87,302 nurses with the present level of training.

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Do these figures represent certain wrong values and priorities in our health care system?

(2) Training

- (a) Nursing Schools :—The number of these in India in 1970 was 557. In spite of gross deficit in the number of nurses, the number of training schools declined over a period of 1966-70.
- (b) With the training facilities available in 1970, nurses trained were, G.N. 6257 and ANMs 5416. The total is 11673. This number is almost the same as that of the number of doctors trained per year.² It is interesting to observe this equity in spite of the fact that there is a big deficit in the number of nurses while the recent WHO report says, that India has got surplus of doctors.
- (c) In a significant number of nursing training schools attached to hospitals, objective of the nursing students training is according to the needs of the hospital for their services, often to the extent that their training suffers.
- (d) According to TNAI Survey, it is found that there is inadequacy of facilities like clinical training, hostels, class-room space, laboratory facilities, recreational areas etc., in particular for ANMs. Even sanitary facilities and water supply are sometimes inadequate. Some students must spend their rare off hours procuring and preparing food. Unsafe hostels for ANM students expose them to the attention of unsocial elements of the community. Very few opportunities are there for these girls to come in social and intellectual contact

with other student groups.

The cumulative effects of these poor working and living conditions on the whole leads to poor training and spirit amongst the student nurses.

- (e) 80% of the heads of the nursing schools don't have any voice in the administrative boards of the hospitals, and in the central budget of the schools. These limitations on the heads of the schools tend to hamper the priorities and implementation of training programme.
- (f) Only a small fraction of the training centres have a separate budget from the hospital and even if it exists, its preparation and operation is usually in the hands of administrative heads of the hospital or the District Medical Officer.
- (g) Cost of training per nursing student—The calculated cost is based on expenses on salaries, stipends etc. directly related to training but excluding the capital cost.

The average cost is : B. Sc. Rs. 12,607/-
 G.N. Rs. 5,650/-
 ANM Rs. 3,185/-

The cost of training per doctor, as quoted by Health Minister in Tamilnadu assembly 4 years ago was Rs. 1,20,000. As the method by which this cost is calculated is not exactly known, it is difficult to compare the training costs of nurses and doctors but still the gap is obviously very wide.

All these inadequacies in the training of nurses point towards the inferior status and priority accorded to the nursing training and profession.

(3) Role in Health Care

There are mainly 2 categories of nurses, GNs and ANMs.

(a) General Nurses (GN)

(i) In spite of 3½ years training which is more than most of the diploma holder doctors, only 4.3% of GNs are given independent patient assignment while 82.7% are given merely functional assignment, i.e. to mechanically obey the orders of the doctors. The hierarchy is seen in all realms of health care and the doctor—nurse relationship.

If one agrees that the prestige and recognition to a particular professional group should be in proportion to its usefulness to the society, then doctors and nurses deserve equal prestige and respect. But unfortunately, what one observes is that the service of the nurses are very poorly recognised by the society and there is a vast difference in the status of doctors and nurses. Cahp-Tnai nursing survey reports that 65% of nurses feel that the doctors don't treat them with consideration. The doctor treats the nurse like a second helper to him or her in the patient care and not like a colleague even though the nurse is better prepared than a doctor in certain areas of patient care during her training. But as the nurses are not trained to do the diagnosis and decide treatment, they don't get their due credit either from the doctors or from the patients. The creative satisfaction goes to the doctors and what remains in the nurses' lot is the laborious monotony.

Why ?

The answer to this why is deep-rooted in the values of

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our social system. In our morbid society the intellectual work fetches more respect than manual labour. A white collar job of officer is always superior to the filthy sweating job of a labourer. And as lot of physical and non-intellectual work is involved in nursing the status of the nurses becomes inferior to those 'God figures of health care'—the doctors.

(ii) Working conditions

It is observed that in most of the hospitals, staff nurses have to do many jobs other than patient care and find inadequate time for both patient care and supervision of students. The Indian Nursing Council (INC) has recommended a ratio of one nurse to every 3 patients in teaching hospitals and one nurse to every 5 patients in non-teaching hospitals. The reality is—only 15% of the teaching institutions have the recommended ratio and nearly 80% of the teaching hospitals and over 50% of non-teaching hospitals record over 80% of crowding.

(iii) Job satisfaction

About 77% of nurses don't have job satisfaction. The main reasons for unsatisfaction are overwork, salary and working conditions.

(b) ANMs

The main role which ANMs are supposed to perform is maternal and child health, family planning and health education in the rural areas. So ANMs should form the backbone of the community health care in rural areas. But in reality, what happens?

WHO survey has shown that an ANM spends 45% of her time in giving medical care, 40% in travelling, 5% on

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paper work and only 10% in performing duties for which she has been trained.³

4. Social status of Nurses

(a) Majority of the nurses come from low socio-economic class with their guardian's income below Rs. 300/- per month; and with an average family size of seven members.

WHO working group on selection of students for medical education (1971) came to the conclusion that the majority of medical students come from urban areas and that too from the elite class.

This difference in the family background does have a bearing on the social status of two professions and vice-versa.

(b) Many nurses and their parents feel that nurses are not respected in the society because they deal with men and also because people consider nursing as an unclean work.

(c) 40-50% of the nurses and their parents feel that marriage is a problem for nurses.

(b) Sex Characteristic

	Male	Female
G.N.	5.83% (3979)	94.17 (64,273)
ANMs	0.00% (-)	100.00% (41,522)

This sex characteristic of nursing profession plays an important role in the status recorded to it. Ours is a male dominated society and hence a profession like nursing overwhelmingly occupied by females can hardly get equal status, however unique its contribution might be.

The doctor nurse relationship also reflects the male-female relationship in our society. A doctor, even if she is a female, becomes the husband figure—ordering, scolding, dominating the nurse. The point becomes very clear when one observes that the male nurses, brothers, receive very different treatment. Brothers command more respect by the doctors, patients and even by the sisters. Doctors admit that they don't feel that free to order or shout at brothers while the sisters are, at times, even physically assaulted by the male doctors. Sometime back, there was a news in Dinman, that one doctor slapped a sister in Rewa Medical College. In protest the sisters went on strike asking for the appropriate action on the concerned doctor. But their strike failed miserably as they received constant threats from the college authorities who probably felt it insulting to see the nurses protesting and challenging the authority of the doctor, that too a male.

5. Sexual exploitation

In no other profession, the chastity of the woman is less secure than in nursing, except of course, in prostitution. Many nurses are often at the mercy of everyone in the hospitals—the superintendents, doctors, patients, relatives of the patients and even the ward boys. The relatives of the patients in private wards very frequently harass the nurses, specially during the night duty. And since they are influential people, they threaten the nurses. The timid ones subject while those who don't have to face complaints, suspensions and remarks in their records as 'disobeying, negligent in the duty, as if to please every male is also a part of their duty.

Recently when one old political leader visited Wardha

as the state guest one staff nurse was posted to take care of him. Apart from other duties, the main duty given to her was to massage his naked body and give him bath. When the nurse refused she was threatened with transfer and suspension and also she was told that it was her duty and should do it considering him as father and respected person.

I wonder, whether the authority would have sent his wife or daughter to serve this respected elderly man in such a fashion.

The outlook of many doctors towards nurses is of sexual exploitation. This was very poignantly expressed in the answer of a doctor to the question "How to motivate doctors to go to rural areas?" "Appoint beautiful nurses at the PHCs" was the reply!

Look at few news clippings :

- In Rajasthan 3 Keralite sisters became prey to death due to sexual exploitation by doctors.
- In Bombay one nurse Aruna committed suicide because of rape.
- At Basti (UP) 5 gundas entered the hostel of nursing college and raped 5 sisters in day time.
- In Nalanda Medical College, one 23 year old student sister Mary was found dead in most suspicious circumstances on 1st Dec. 1979 and the truth came out later, she was sexually assaulted by one notorious medical student. (The whole case was suppressed by political pressure)⁴

Specially in the remote villages, where ANMs are posted, they are very insecure. The nurse is looked at as a catchy prey by all the village 'Dadas'. There was a

tragic case of Miss Vaidya who was murdered in Vaca Village in Maharashtra because she refused to give in to the sexual overtures of the local leader. One ANM who left the job, told "In the nights, many village gundas come to me and show their sex organs and ask for the Nirodh of the particular size".

In such circumstances, without any protection, how can nurses work safely in the villages ?

From all this analysis of the present status of the nurses, it seems that :

(i) *There is incomplete utilisation of the full potentials of nurses in the present health care system.*

(ii) *Their status and problems are reflections of certain wider values in our health care system and the society in general. Hence we cannot look at the problems of nurses in isolation but must see them in the context of the wider reality of the whole social system and its values.*

B. FUTURE POTENTIALS OF THE NURSING PROFESSION

In view of the preceding analysis, the future potentials of the nurses can be seen in two main fields;

(1) Role in the health care (2) Role in the social change.

(1) Role in the Health Care

It has been realised now that the doctor is a 'white elephant' which our poor society and people cannot afford to train and sustain in large number. Hence WHO ideal of one doctor for 750 population is irrelevant in our context. Apart from the cost, the doctor is not so effec-

tive in reaching the masses in the rural areas because of his/her attitudes, aspirations, elitist family background and education. Thus the intermediate tier becomes important in the health care of our country. The potentials of the nurses should be understood in this context.

(a) Maternal and child health (MCH)

Women of child bearing age and the children below 15 years age together constitute 2/3rd of the total population in our country. They together also form the 'biologically vulnerable' section of the population succumbing to the various diseases. Most of their diseases are easily preventable and treatable. They are also the 'weaker section' in the family structure, and hence neglected.

Due to these reasons, MCH has been accepted as the main thrust of community health care.

ANM has the key role in MCH services for the needy masses. Because of her sex, less elitist social status and education, and low cost of her training and functioning she is more suited for this role than the doctors and the other male functionaries.

(b) Family Planning

Again ANM is more relevant in this role than male functionaries for helping women to take benefits of F.P. methods.

(c) Attitude towards Women's Health

The present outlook of the medical system with regard to the women's health in general and the Family Planning in particular is oppressive. Being a part of this set up

ANMs are also infected with this attitude. The ANMs should be helped to discard this attitude of seeing the problems of women through the male's eyes—with indifference, contempt and coercion, and should be helped to learn to see the women's health problems through the women's eyes and understanding. ANMs can also help women in general to get rid of the guilty feelings and ignorance about their own health and learn to have a positive attitude towards their own body and health.

(iv) Nutrition and health education

Being a woman, ANM can best convey the message to the women including mothers who form that most important target group for the purpose of nutrition and health education.

(v) Curative Services

ANMs have limited curative powers today. A diploma holder doctor is allowed to use all the medicines. Why can't an ANM use more medicines to be able to treat most of the common illnesses with some more training of this role?

"An auxiliary can treat 90% of children's sicknesses"

—Rural health Research Centre, Narangwal.

"I am convinced that in any field of health technology it has been shown that with only 2-3% of conventional technology, we could arrive at 80% of necessary quality care".

—Mahler Halfman, Director General, WHO.

Paramedical workers with proper training have successfully done tubectomies in Bangladesh⁵ and Caesareans in Tanzania.

More curative powers to the ANMs will make such crucial services easily available to the masses, specially to the women and will also improve the status and acceptability of the ANM by the community as important health functionary.

(vi) Other Health Functionaries

The 'village health worker' (VHW) who should essentially be a female and the 'rural obstetrician'—Dai—are the further steps of the same logic. They should be welcome in the health care system.

ANM, VHW and Dai together can form a strong female infrastructure for the community health care. They together can manage more than 90% of the health problems of the community and specially of women. Such female network will greatly help the women of the rural areas who don't have an access to proper health care today.

(vii) Role in Hospitals

The nurses in the developed countries perform much more complex duties independently. There is no reason why our general nurses should merely be robots. They can be and should be given more responsibility, respect and freedom.

(viii) Corrective Measures

To enable nurses to grow to these fuller potentials, certain steps are essential.

(A) Increasing the woman-power :—In 1971 ANM : population ratio was 1:13170. The Govt. has recognised the importance of ANM and has set the target of one female multipurpose worker (formerly called ANM) per 5000 population to be achieved by 1985.⁶ But even this

ratio is also inadequate. Ramalingaswami Committee (1980) has recommended one for 3000 population.⁷

To meet this target number of the nurses training schools and the training capacity will have to be increased manyfolds. Though both—general nurses and ANMs, are needed in much larger number to reach the optimum requirements, the priority should be given to the ANMs as they will form the backbone of the rural community health care.

(B) The training facilities will have to be improved not quantitatively alone but qualitatively as well. The living and working conditions should improve. The training should not be geared to use the student nurses as a pair of hands for the hospital routines. The training should be more community oriented and community based than hospital based.

(C) The new upgraded and expanded role, functions and status of the nurses in health care should be clearly defined and their training and working conditions suitably modified.

(D) ANM should not only herself be a respected member of the health team but she herself should also learn to respect and work in harmony with VHWs and Dais.

(E) To bring all these changes is going to be a major political decision. Funds will have to be diverted from medical colleges, MBBS trainings and doctors to the nurses training schools and rural health care. Planners and doctors will have to learn and accept these new priorities. As most of the elite class today sets its eyes on admission in medical college, a shift in the focus will be vehemently opposed by this class and the doctors.

(2) Role in the social change

(A) *The present problems of nurses are essentially the problems of the women, of the manual worker, of the low socio-economic group. Nurses cannot get their new role and the just status unless the social system and its values change. So the nurses will have to identify themselves with the problems of women and poor in general.*

(B) *The nurse is probably the only professional group which is so exclusively made up of the women. The problem of this profession are the problems of the women. So through their own issues it is possible to make them aware about the problems and exploitation of the women in our society; and then they can be organised and advised to fight against this. Nurses have two strong levers for this purpose.*

(i) ANMs will have close contact with female VHWs, Dais and the women of the rural areas. They will have an entry point like health work. These two advantages they can utilise to work among the rural women to help them understand the problems of women in the society and to fight against them.

(ii) General nurses are the arteries of the hospitals. During the crucial moments in the women's fight for justice, the GNs can utilise their unique power to paralyse the most essential service and turn the balance in the favour of women.

Thus nurses as a profession have immense potentials to play the key role in the struggle of women for justice and emancipation.

It is high time the activists and the organisations in the feminist movement realise this and concentrate on the nurses than on the urban middle class women alone.

**A Case against Mass Cholera Vaccination
Morbi Experience***

Anil B. Patel



Now, remove that and fix this one.

On 11th August 1979 at about 3 p.m. very few in Morbi city suspected that the city was about to go through the worst disaster in the history of the city. Within

* The recent catastrophe in Morbi (Gujrat) rocked the whole nation. It touched the hearts of MFC members too ! Anil Patel and Ashvin Patel of MFC went to Morbi for relief work with a team of interns from Vadodara.

Instead of describing in a routine manner the work by the team there, Anil Patel briefly reviews the health action policy of the health authorities there and raises a very relevant but unorthodox question about the use of mass cholera vaccination in such situation weighed against the failure rate, cost involved and the availability of other effective method.

—Editor

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minutes the dam on river Machchu burst and the city was completely submerged under meters high waves of flood water. Waves after waves of flood water washed away practically everything. It all ended in about 8 hours but during those never ending 8 hours surviving population sitting at the housetops saw almost complete destruction of their truly beautiful city. Within minutes water levels rose to more than 30 feet in low lying areas and atleast 10 feet in higher areas. Water rushed through all the ground floors. All the fresh water stores thoroughly contaminated. The open sewers of Morbi city were clogged with mud and debris. Most pucca houses have septic tank latrines but whether they are in working order or not is anybody's guess. Water-works that lay in the line of flood has been completely destroyed by the fury of the water.

HEALTH MEASURES

The state Health Authorities have initiated mainly 4 activities against possible hazards to the health of surviving population.

(1) *Mass vaccination against cholera :*

Anyone leaving or entering Rajkot city on Morbi Rajkot road is given cholera inoculation. Similarly fairly extensive vaccination campaign is going on in and around Morbi city. Obviously in health authority's reckoning cholera epidemic is the most important threat that the city now faces. The mass vaccination campaign is obviously by far the most important thrust of its strategy to fight the advances of cholera epidemic.

MASS CHOLERA VACCINATION

(2) *Immediate medical relief :*

A central hospital with an admission ward is working in the city. In addition to this, mobile medical teams are going round the city in a systematic fashion to provide immediate medical aid to those who can not report to the Central Hospital. The main problems encountered by these teams are : Small cuts and wounds in hands and feet, conjunctivitis (this appears to be a state wide phenomenon), fevers caused to a considerable extent by cholera vaccine and of late a few cases of dysentery are making appearance.

(3) *Insecticide (B.H.C.) spraying :*

The mud covered streets are being sprayed regularly with B.H.C. The objectives of the spraying operations seem to be to prevent— (a) mosquito breeding. (b) house fly breeding. (c) offensive smell emanating from mud, rotting grains and decaying bodies of dead animals.

(4) *Provision of chlorinated water supply :*

Drinking water is being supplied through a fleet of tankers. The water is drawn from wells outside Morbi. Presumably these wells were not flooded. The water in the tankers is then chlorinated.

MASS CHOLERA VACCINATION : A CRITIQUE

An attempt will be made now to critically examine the most important public health measure, the mass vaccination against cholera in general and in specific context of epidemiological situation obtained at Morbi. There appears to be complete sharing of the views between the

state health authorities and the medical profession as a whole as to the assessment of the health situation prevalent in Morbi and the best way to obviate the cholera epidemic.

In view of the new developments in the epidemiology of cholera and related diseases; the serious short coming of mass cholera vaccination as shown in the field conditions; and the advent of cheap, effective and efficient alternative methods to deal with outbreaks of severe gastroenteritis of which cholera forms but a component, this critique is both inevitable and necessary.

Rationale of Mass vaccination

There are 3 main purposes of mass vaccination. (1) To create a barrier of herd (mass) immunity to prevent an entry of pathogen in the community in which it is not indigenous. (2) To prevent the spread of pathogen in the community by interrupting the chain of transmission if the infection is already indigenous to the community. (3) To protect the community from the effects of the communicable disease in question.

While it is true that transmission of certain diseases may increase in the wake of disaster, this is not always the case. Epidemics are likely only if a new pathogenic agent is introduced, if the susceptibility of the population is altered or if the transmission of preexisting pathogen is increased¹. Now with respect to cholera in India, there is no question of cholera organisms being introduced a new anywhere in India. Almost all the states are endemic for *V. cholera*.² This leaves the increased transmission of cholera organisms in the community as one of the most probable mechanisms of cholera epidemic in situations

like flood disasters. During flood the community water supply usually gets disrupted or heavily contaminated. The population is virtually forced to consume contaminated water. This opens up vast number of channels of transmission of infection. This logic usually lies behind the universal demand for mass vaccination in flood situation. Mass vaccination in such situation can serve atleast two of the three functions mentioned above in endemic areas. One, that of interruption of transmission of infection and two, to provide protection against the diseases.

Effectiveness of cholera vaccine in the field conditions

This brings us to the usefulness and effectiveness of cholera vaccine in the field conditions. Large well-planned, controled field trials of cholera vaccine in Bangladesh have brought out the short-comings of cholera vaccine most unequivocally.³

(1) Controled field trials have shown that maximum estimated effectiveness of vaccine in the field is 55%. In the most vulnerable age group of children the effectiveness is only 33%. This is obviously very unsatisfactory situation.

(2) At no time full population at risk is covered. Those who clamour for vaccination must need them least, and those who escape the vaccination net need them most.⁴

(3) Many vaccines tested by WHO Reference Laboratory have been found to be lacking the desired potency to offer even the partial protection that is expected of them.⁵

(4) If the vaccine is used too early in the alert phases

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its efficiency may have declined by the time epidemic arrives. The implications of these observations are worth discussing.

When vaccine fails

Even in the best circumstances when total population at risk has been covered through inoculation, atleast half of this population is still as much likely to contract cholera as unvaccinated. Given 50% fatality in severe untreated cases of cholera this would result in very high mortality. Thus even complete vaccination fails in its twin objectives of interruption of transmission of cholera and providing protection to vaccinated in the typical field conditions.

At the time of natural disaster with massive disruption of public sanitation system the danger is not that of cholera epidemic only, but also that of gastro-enteritis complex of which cholera forms a small component only.

"The difficulty in distinguishing cholera from the other acute diarrhoeal diseases was emphasised by WHO expert committee on Enteric infection, which noted that "Acute diarrhoeal diseases must be regarded as a clinical rather than pathological entity and the immediate management must consist of correction of fluid and electrolyte imbalance irrespective of enteropathological organism identified or suspected. The clinical similarity between acute diarrhoea and cholera is further underlined by reports from cholera endemic areas, which noted that upto 70% cases hospitalised with cholera like diseases at specific time of the year were bacteriologically confirmed as cholera, but at

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other period, non-cholera diarrhoeas that could not be differentiated clinically were the most common causes of hospitalization."

The mass vaccination against cholera provides no protection against gastroenteritis complex. The mortality in severe untreated cases of gastroenteritis is a little less heavy than in cholera. The most important cause of high mortality being dehydration, acidosis, and shock.

While the advent of oral rehydration technique which is cheap, simple, very effective, and which can make ready use of locally available material, it is now possible in most field conditions to reduce the frightening 50% mortality to less than 1% not only in cholera but also in all gastroenteritis.⁷ Recently cholera outbreak in The Republic of Maldives which is not even endemic for cholera was quite effectively handled by this method. No mass vaccination was resorted to.⁸ In Jerusalem, another non-endemic area, cholera outbreak of 1970 was also brought under control without launching mass vaccination program.

But what about controlling cholera ?

True, this approach of rehydration makes no dent in the dynamics of on going transmission of cholera in the community. The disease remains as entrenched as ever. The point is however that mass vaccination for all its promises fails to achieve the interruption of transmission of infection, and also to provide protection against cholera, not to mention much bigger problem of gastroenteritis. In the existing state of knowledge, available resources, and technique organization of vast network of oral/I.V. rehydration centres only promises to be of help which is

not negligible. To those who are cost conscious, the available data on cost-effectiveness so far, points that mass vaccination is not only not effective but also perhaps a little more expensive than rehydration method.¹⁰ Let us now turn to specific epidemiological situation at Morbi after flood, to see how relevant or otherwise the mass vaccination approach is.

MORBI AFTER FLOOD : EPIDEMIOLOGICAL SITUATION

Morbi being endemic for cholera, the logical ground for mounting mass vaccination campaign could only be a real possibility of much more enhanced transmission of cholera organism in the surviving population in the wake of unprecedented floods.

Unlike in the typical flood disaster when water supply is contaminated and the population is forced to consume such water; in Morbi the high level water entered the city in a very very short time and receded completely in about 8 hours, leaving behind thousands of dead, untold damage to property and hundreds of thousands of tons of stinking mud. The first thing the terrified, and dazed surviving population wanted to do and did at the earliest opportunity was to leave the city. In no time the whole surviving population had fled to surrounding unaffected villages and the city of Rajkot. It is inconceivable that substantial proportion of the population consumed during that short period contaminated water. Thus on the basis of overwhelming circumstantial evidence one can say that there is no ground for the belief that just because Morbi was flooded large number of population consumed the contaminated water and therefore there is a danger of

increased transmission of cholera organisms. But this is precisely what has been implicitly assumed by every one in medical profession including the State Health Authorities.

Where is the target population, if it can be so called, to which vaccine should be administered in any case ? It is scattered all over. It is both impossible and unnecessary to trace them. Who is being vaccinated then ? Part of the target population ? Most probably not. Atleast until very recently very tiny proportion of population had returned and quite significant part of this was not the native population. They are usually the inhabitants of surrounding unaffected villages who are either the relatives or hired labourers to clear the houses. What is then point in vaccinating non-target population ? It is difficult to describe this activity as anything but blind reflex action. The action is derived from classical text book recommendation 'whenever there is a flood, vaccine the people against cholera.' And what about other waterborne infections, say typhoid against which vaccine is available ? On all counts the mass cholera vaccination campaign in Morbi has no rational basis to it.

The Impending Health Hazards

The health situation in Morbi is still within manageable bounds. Indeed at one stage one suspects that there were more doctors around in Morbi than patients. But this unusually low morbidity has nothing to do with ongoing health activities.

Presumably the most vulnerable died in the first hour of disaster, then the population left enmasse. Those who have returned are all able bodied adults, who are bound

to be resistant to endemic pathogens, and are at any rate consuming tanker water ! More and more people are however returning now, bringing more children with them. The public sanitation is in complete shambles and the prospects of it being put right in time are very dim indeed. Water supply though satisfactory and adequate at present will prove to be inadequate atleast in quantity as the population swells. Non-existing sanitation and daily increasing young population will provide a perfect setting for multifocal, rambling outbreak of gastro-enteritis to take off. No doubt cholera will be one of its computants. As to how big that will be is anybody's guess. If the reports are correct the process must have started and will gather momentum to reach its peak in 4-6 weeks time. May be a little longer.

Add to this, inevitable malnutrition in children population in atleast in lower socio-economic groups and their increased susceptibility to infection via orofaecal route. Other gastrointestinal pathogens should not be far too behind. Typhoid, hepatitis, giardiasis, amebiasis must be reckoned with. And what about Malaria ? The threat is quite real. Can tetanus, gas gangrene be dismissed lightly in a population with high percentage of cuts and wounds, and working through the day in the mud which may well be full of spores of tetanus and gas gangrene bacilli ?

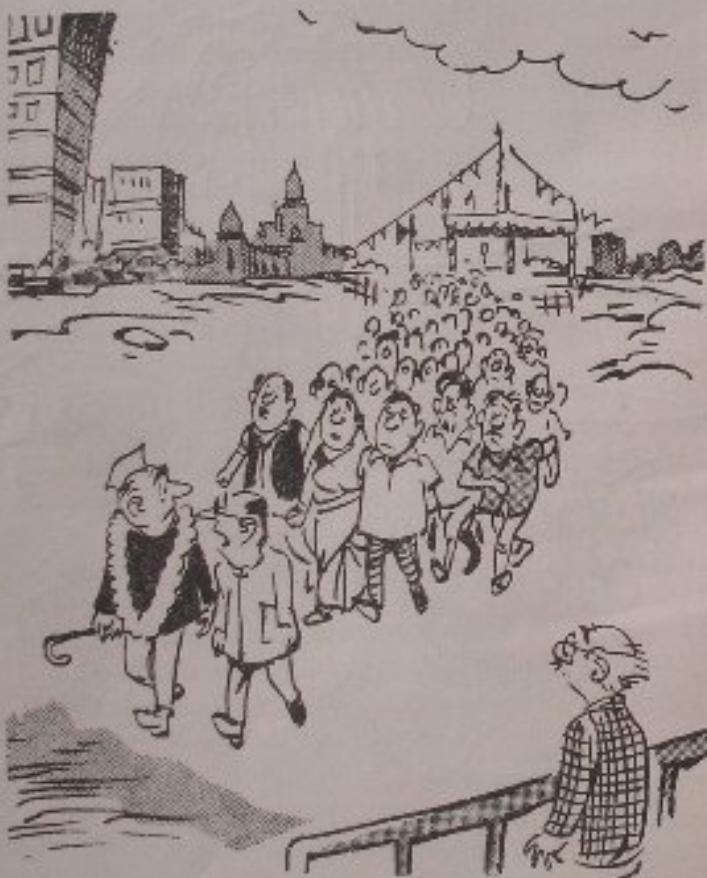
It is impossible now to make more precise prediction of most likely course of events. But mass vaccination against cholera is certainly not the top priority line of action one should be contemplating today in Morbi.



Water ! Water ! We have struck water !

Water Supply : Quantity Versus Quality

Anil B. Patel



Yes, sir, they are following ! Must be that part of your speech in which you promised everyone enough drinking water !

In tropical countries water debate has largely come to be dominated by the problem of quality of water to be supplied. However the quality issue is a minor one. I will propose and defend the following statement—Among many issues of water supply in tropical countries the most outstanding one is, that of quantity Vs quality of water supply. *Established view emphasises the quality part only, whereas the issue of greater importance is that of quantity of water to be supplied to the community*

The emphasis of public health man, economist, and planner should be on quantity and not on quality.

The reasons are (A) Economic, (B) Biological, (C) Epidemiological and (D) Organisational.

A. Economic Factors

In temperate climate the chief ground for provision of a quality water supply is stated to be improvement of public health, but the real reason is that the people are willing to pay an economic price for quality water supply. Improved health of the community is not really an important consideration there. In the developing countries of the tropics, situation is very much different. Vast majority of the rural population and the population living on the urban fringe is so desperately poor that it cannot be expected to pay for the quality water supply. Moreover the diseases related to water supply are more numerous, more important, and more diverse in the tropics than in temperate countries. The relationship between water and disease in the tropic is much more complex and urgent. Improved water supply leading to improved health status is an important factor in deciding the type of the water to be supplied to these communities.¹

Statistics released by WHO in 1973 revealed that 1.11 billion people living in the rural areas of the developing countries (86% of the rural population) were without 'reasonable access to safe water'. (Reasonable access is defined as being that 'a disproportionate part of the day is not spent in water fetching'; 'safe water supply' includes treated water or untreated but uncontaminated waters such as from protected boreholes, springs and sanitary wells.) In 1972 the World Health Assembly set a target of 25% of the rural population of developing countries to have a reasonable access to safe water by 1980. This meant 240 million people must be provided with such water supply by 1980. But by that time population in the region would have grown by 290 million. To keep the

unserved population figure at 1972 level 290 million people will have to be provided water.² This is going to be an impossible job. The economic resources are going to be severely strained even to keep at the same point let alone improving the situation substantially. In India situation is pretty bad indeed. Of the half million villages only 49000 (pop. 2.60 crores) had been provided with reasonable water supply, upto 1975.³ Of the remaining villages more than 1 lac. villages have no easy access to water. Rs. 1100 crores are needed to provide drinking water supply to these villages and the total provision for rural water supply in the 6th plan is Rs. 326 crores.⁴

In a situation so bad as this the difficult choices between differing incomplete sorts of improvements have to be made. If these choices are not made consciously, we will end up in a situation where a few will get excellent water supply and the vast majority in rural areas and on urban fringe will get no water supply to speak of.

B. Biological Factors

Questioning the water quality standards

In 1971 W.H.O. published a guideline called International Standards for Drinking Water.⁵ It states that for individual or small community supplies, water should be condemned if it is repeatedly found to contain more than 10 coliform or 1. E. Coli, per 100 ml. of water. This standard has dominated the debate on water supply to the communities. Teaching in Medical colleges takes this standard as unquestionable dogma.⁶ This conventional wisdom is highly misconceived and is to a substantial measure responsible for under-development of community

water supply. This has also led to not only wrong headed teaching but also thwarting meaningful dialogue on how best to deal with the crisis situation, especially in relation to the community health problems. Besides, this standard is full of qualifications and pitfalls.

The theory of coliform count originated in the temperate countries.⁷ The idea is simple. To detect and to quantify the faecal contamination of water source an indicator is needed. This is the coliform bacteria which are predominantly present in human and animal excreta. If there has been recent pollution of water source, these coliform can be grown in an artificial medium at 37°C. in 24 to 48 hours. At this temperature however the soil bacteria are killed thus separating bacteria of faecal origin from soil origin. However there is a rub here. This is true only for temperate climate, because temperature in stream waters in temperate countries never reach 37°C., as a result the soil bacteria cannot survive at that temperature. Whereas in the tropics the temperature of surface water and shallow ponds easily reach that temperature, even exceed it quite often. The soil bacteria, as a result over ages, have adapted themselves to high temperature making it impossible to differentiate the coliform from the soil bacteria. The coliform count in the tropics is highly misleading.

There is another reason. In recent years the coliform count has been replaced by *E. coli* count. *E. coli* are exclusively faecal in origin. They can be grown at 44°C. This provides the basis of separation of coliform bacteria of the soil origin from the bacteria of faecal origin. The trouble is, in the tropics there are soil bacteria which can

Classification of infective diseases in relation to water supplies

Category	Examples	Relevant water improvements
1. Water borne infections	Typhoid, Cholera	Prevent casual use of other unimproved sources & Improve water quality.
2. Water washed infections.		
a. Diarrhoeal diseases,	Bacillary dysentery	Improve water quantity & Improve water accessibility.
b. Skin & eyes.	Scabies, trachoma.	
3. Water based infections.		Decrease need for water contact.
a. Penetrating Skin.	Schistosomiasis	
b. Ingested.	Guinea worm	Improve quality.
4. Infections with water-related insect vectors	Malaria, sleeping sickness, filariasis	Improve surface water management & breeding sites of the insects.
5. Infections primarily of defective sanitation	Hookworm, roundworm	Sanitary faecal disposal.

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grow even at this temperature. Finally it is known that *E. coli* in the tropical waters can regrow. This then would overestimate the extent of pollution. This discussion illustrates the point that one has to be very careful and cautious in accepting the WHO standards uncritically.

C. Epidemiological Factors

Improvement in water supply to community can be made in quality, quantity, availability, and reliability. Ideally we should have all, but as discussed in (A), economically this is impossible. It is also imperative that improvement in community health should weigh heavily in deciding which combination of the above four factors must be considered before community is supplied with water.

The crucial question to ask is : How does the improvement in the water supply relate to improvement in the community health ? More precise question would be : What type of improvement in water supply will lead to how much improvement in community health ?

Before we go to these questions a little digression is called for. Human health in India is very poor. The measure of ill health is the pattern of mortality and major morbidity load carried by different population groups in the community.

Mortality Pattern

Roughly 25% of the children born do not see their 5th birth day. About 150 children die during their first year of life and another 70 in 2nd year of life. Of the total deaths 50% occur in under 5 age group. Two causes of death predominate the picture. Infectious diseases and

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malnutrition. These two are in turn locked in a circular relationship with each other. The most important killer infection in childhood is gastroenteritis.

Morbidity Pattern

Major morbidities are again gastro-enteritis, skin sepsis and ulcers, scabies, and diseases affecting eyes like trachoma. These are all diseases related to water directly or indirectly.

Epidemiology of Water-Related Diseases

Going back to problem of relationship of water supply and the major health problems in the community. Until very recently epidemiological mechanisms of water related diseases were poorly understood. All gastro-enteritis were treated as water borne diseases, meaning thereby that these diseases are *caused only by consuming polluted water*.⁸ Skin diseases and eye infections were hardly ever mentioned in relation to water use. And the diseases like malaria, filariasis, encephalitis, guinea worm disease, and intestinal infestations were never mentioned in discussing community water supply.

The most important single advance in understanding the relationship between water supply and disease is reclassification by D. Bradley of water related disease into categories which is in some ways related to water or impurities within water.^{1 & 2}

1. Water-borne infections

The classical diseases in this group are typhoid and cholera. The infecting dose of the infective organism is very low relative to the level of pollution that readily

occurs.⁹ In case of cholera however the infecting dose is much bigger than in typhoid. Untreated water always carries the risk of these infections. In small communities the risk is very very low.

2. Water-washed diseases

The infection that can be spread from one person to another by way of water supplies may also be more directly transmitted from faeces to mouth or by way of dirty food. When this is the case the infection may be reduced by provision of more abundant or more accessible water of unimproved quality. This applies particularly to the diarrhoeal diseases due to bacteria (except cholera), viruses, and to protozoa. (amoebiasis, giardiasis.) A very carefully done study in southern U.S.A. has shown that by making more water available the frequency of dysentery could be halved¹⁰. The diarrhoeas are the most important water-washed infections in tropics today.

The second important group of water-washed infections is infection of skin and eye. Skin sepsis, ulcers and scabies are so wide spread that situation might appear beyond retrieval. More water and improved personal hygiene can go a long way to reduce the frequency of these infections. These infections not only make people ill but also contribute substantially to retardation of physical growth of children by precipitating or deteriorating further the malnutrition.

Trachoma itself produces much less damage when water supply is adequate.

What is an adequate water for hygiene ? It is clear that a few litres is not enough and several hundred of litres is more than adequate. In practice it appears that

unless water is piped into the home, water use is not at the optimal level for health.

3. Water-based infections

Fortunately for us both the major infections, schistosomiasis and guinea worm diseases are not major problems. Although there are areas in India where guinea-worm is common¹¹ The size of the problem is however not known. Also schistosomiasis has been reported in Ratnagiri Dist. of Maharashtra State. Again there is no information available as to whether it is taking roots or not.

4. Water related infections

Infections caused by bite of insects which breed in water are malaria, filariasis, dengue fever, yellow fever etc. Increasing availability of more amount of water without commensurate drainage facility can cause increased breeding of mosquitoes leading to increased transmission of these diseases. In rural areas however this problem does not appear to be a big problem.

D. Organizational Factors :

Maintenance of water supply system in rural areas is a problem in itself. Village hand pumps may become useless because of corrosion, encrustation, misuse and wear. Closed wells may be opened up again. Measures to ensure non-contamination of wells or streams or lakes are virtually never enforced. The level of people's participation and their perception of the health hazard is so low that maintenance of even low level technology is very difficult in rural areas. To talk of quality water

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supply which apart from cost would mean continuing care of fairly sophisticated technology installed for the purpose of treatment of water is to be totally unrealistic. There is no such thing as a simple or easily maintained treatment system and planners and designers should approach the decisions about treatment and quality with an open mind and not with the pre-judgement that treatment is necessary and WHO standards must be respected. There will be circumstances when treatment is appropriate and those when it will be not.

If this argument of primacy of quantity over quality is accepted then whole range of possibilities and new problem areas open up. These have not been thought of so far let alone formulated. When this is done water supply and associated health changes will enter the realm of practical possibilities.

♀ + H₂O = HAPPINESS 4 ALL

Source : *Women and water*

Oral Rehydration

Malathi Damodaran

The link between diarrhoea and malnutrition is a strong one. Indeed diarrhoea itself is a form of acute malnutrition, which we term Fluid-Electrolyte Malnutrition or F.E.M. The acute lack of water and electrolytes from the body is the cause of death in F.E.M. The essence of therapy for F.E.M., as for other forms of malnutrition, is the replacement of missing body constituents.

Thus preferred treatment for P.F.M. (Protein-Energy Malnutrition) is protein and calories, for beri-beri Thiamine and for F.E.M. fluid and electrolytes.

—John Rhode and R.S. Northrup in 'Acute diarrhoea in childhood.'

Malnutrition and diarrhoeal disease constitute two most important causes of morbidity and mortality in young children of the developing world. The effect of repeated attacks of diarrhoea in producing and perpetuating malnutrition is well established.

Acute watery diarrhoea is caused by a variety of bacterial and viral agents. Some of these agents produce diarrhoea by invading and reproducing within mucosal

Oral rehydration technique is one of the most important breakthroughs in the field of appropriate technology in health care. It is important not only because it is cheaper but because it proves that health care can be simplified so that masses can take care of their own health without medical sophistication. This would be real 'Health By the People.'—Ed.

cells of the bowel and damaging the mucosa, resulting in water and electrolyte loss, while some others colonize the lumen and produce enterotoxins. These different pathophysiological mechanisms produce the disease, which is generally self limiting and is characterized by :

1. Passing of isotonic fluid which may be similar to or differ from plasma in the electrolyte content, depending on the rate of output.

2. Disaccharidase deficiency also is noted during the diarrhoeal and early convalescent period.

Dehydration, the cause of immediate morbidity and mortality in diarrhoea, occurs as a result of loss of fluids and electrolytes from the body. When the loss is rapid and large and the age younger, the dehydration may be severe, manifesting as shock and leading to death. However, in a majority of cases, the dehydration may be mild or moderate, manifesting as increased thirst, decreased urine output, decreased skin turgor and dryness of mucosa.

The long-term effects of repeated diarrhoeal attacks are largely nutritional, and most pronounced in young children, who have marginal food intake. The cumulative effects in increased demands, protein catabolism and decreased intake resulting from anorexia and often imposed fasting during the illness, result in restricted growth and further exacerbation of existing malnutrition.

Considering the immediate and long-term effects of diarrhoeal disease, the two major objectives in treating diarrhoeal would appear to be :

1. Early replacement of water and electrolyte losses to prevent or treat dehydration.
2. Maintenance of adequate nutrition.

ORAL REHYDRATION

Fluid and Electrolytes Not the Drugs

Till the early seventies, the treatment of diarrhoea consisted of drug therapy, along with the use of intravenous fluids to correct dehydration. Now it has been amply documented that antibiotics are not useful in most cases of diarrhoea, except those caused by *vibrio cholerae* and *shigella* and no other chemotherapeutic agents have been shown to be useful in treatment of diarrhoeal illness. Now it is clear that the primary goal of treatment of diarrhoea is fluid and electrolyte replacement. Intravenous therapy has the obvious disadvantage of being expensive, and requiring trained personnel for its administration. The use of this form of fluid replacement would naturally have to be restricted to severe cases of dehydration.

Oral therapy is based on the observation that glucose is actively absorbed by the normal small bowel and that sodium is carried with it in an equimolar ratio. Thus, in the normal intestine there is considerably greater net absorption of an isotonic salt solution with glucose than of one without glucose. During acute diarrhoea, the absorption of sodium is impaired and administration of salt solution may enhance diarrhoea. However, glucose absorption remains unimpaired and addition of glucose to isotonic salt solution would facilitate the absorption of electrolytes.

The composition of oral fluid which has been widely and effectively used and which is recommended by WHO is as follows :

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Sodium	90	mEq/lit
Potassium	20	" "
Chloride	80	" "
Bicarbonate	30	" "
Glucose	111	mM/lit

This is prepared by adding to one litre of water :

Sodium chloride	3.5 g
Sodium bicarbonate	2.5 g
Potassium chloride	1.5 g
Glucose	20 g

Simplification into a home remedy

Such a mixture is available commercially. It can be easily prepared in health centres and dispensed in plastic bags, stored in a dry condition. As an alternative, at the home level the mothers can be taught to prepare the solution by adding $\frac{1}{2}$ teaspoon or 3 to 4 "three finger pinches" of salt and 5 teaspoons or a "four finger scoop" of sugar to one litre of water. Once prepared, the solution should be used up within a day. The solution may be used as the sole therapy to rehydrate patients with mild moderate dehydration (who constitute a majority) and also for maintaining hydration after rehydration has been achieved. The patient is encouraged to drink as much fluid as possible, thirst being a guide to the amount of fluid required. Vomiting may occur, but can be overcome by administering small amounts, frequently.

A number of studies in children and adults with cholera and non-cholera diarrhoea have established the efficacy of oral therapy in a hospital environment. The success of oral therapy can be judged by the considerable

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reduction in the use of intravenous fluids, thus bringing down the cost of treatment. Fewer studies have been done on the use of oral therapy in an outpatient setting. However, it is obvious that children with mild-moderate dehydration can be rehydrated at a health centre and sent home with instructions to the mother regarding the continued use of oral fluid. The instructions should be clear and include use of accurate measurements of the ingredients, if packets are not available, as also the correct measurements of water. The need to use up the solution within 24 hours has to be stressed.

The real usefulness of oral therapy lies in the possibility of using this approach in the home setting with minimum or no medical supervision. Information about the usefulness and safety of this approach used in this setting is scanty. It is clear that this is a tool which can be used by the community health workers, paramedical workers for minimising death from diarrhoea.

There are presently some differences of opinion regarding the optimal content of the oral fluid. While the ideal would be to have an universal diarrhoea fluid, there are some who doubt the advisability of the same. The main controversy centres around the sodium content, which according to some, may be too high for universal use. Since, the availability of glucose is limited in some areas, sucrose has been suggested as an alternate carbohydrate source. There is sufficient evidence to show that sucrose can replace glucose.

Not to Forget Nutrition and Sanitation

A recent study in the Philippines has documented that children with diarrhoea, particularly with recurrent

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episodes, do better nutritionally when treated with oral fluids and continued food intake during the diarrhoeal episode. The major effect of the oral fluid seems to be the quick reversal of nausea, vomiting and anorexia, so much a part of the diarrhoeal syndrome, thereby improving the food intake. However, this observation needs to be substantiated further.

It seems obvious that while oral fluid corrects the fluid and electrolyte imbalance, the long term effects of diarrhoea, namely malnutrition, can be prevented only by ensuring proper food intake during and following the diarrhoeal attack. However, most of the mothers and many in the medical profession, believe in starving the patients or giving dilute gruel during diarrhoea. In some parts of the country water is forbidden for infants and young children, especially during diarrhoea, as it is believed to worsen the disease and also cause cold. The widespread use of oral hydration would necessarily involve studies regarding such practices and suitable modifications to suit the local beliefs.

Oral hydration can at the best be considered as a tool to reduce mortality from diarrhoea. However, the reduction of the disease incidence can only be brought about by other measures such as protected water supply, sanitation measures and health education to improve food and water handling practices and personal hygiene. These measures can only form part of overall socio-economic improvement and spread of education and this cannot be treated in isolation.

As we know, the reach of the health system is very limited and it is seldom there when diarrhoea occurs...the solution has to be where the problem is.

— Dr. Lukas Hendratto



What is so new about sugar-salt solution ? Since ages we doctors have earned money by selling it as medicine for various diseases, though not for diarrhoea.

On Diarrhoea and Rehydration What, Why and How ?

Anil Patel

1. Is gastro-enteritis really a big problem, it is made out to be by some ?

It is true that gastro-enteritis is so common an illness in community that it has become a 'normal' part of life. It is not only one of the most prevalent diseases in the community, but it is also a great killer of the children. This is not all. More often than not diarrhoea is responsible for precipitating a severe nutritional crisis in child's life, pushing the child into vicious cycle of infection causing malnutrition, which leads to increased susceptibility to further infection and so on.

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2. How can the mortality and the morbidity caused by gastro-enteritis be reduced ?

The most probable chain of events in untreated severe cases of gastro-enteritis is, dehydration-acidosis-and death. If this chain can be broken all the time at all the places and in all affected persons, cheaply, by simple means, by prompt rehydration and correction of acidosis then unduly high mortality can be reduced considerably.

3. How obvious ! Things are easier said than done ! How can we realistically provide sophisticated intravenous therapy to all cases that could occur in such a scattered population ?

True, most commonly taught and practised method of treating dehydration in case of gastro-enteritis no matter what is the degree of dehydration, is I.V. therapy. This does not make it necessarily the best method of rehydration. Sheer size and spread of the cases has such a huge logistics problems, apart from its prohibitive cost, that I.V. therapy for all cases is out of question. To plan for such services is plain foolishness.

4. Is there a better alternative ?

Oral rehydration therapy (ORT) meets the bill very neatly. In most of the cases I.V. therapy is not necessary and with ORT the train of events leading to death can be interrupted much more effectively and easily. Besides it is very cheap, simple to grasp even by layman, incomparably easy to administer and can be made available every where to every one. The need for I.V. therapy is not eliminated altogether but its usefulness is now made very restricted and extremely well defined.

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5. This sounds very interesting. The logical consequence of ORT is not only that we are restricting the scope of I.V. therapy but also that of a doctor.

This is precisely the point. Wide spread use of ORT will not only help reduce the mortality but will also impart to community much needed confidence to handle the problem on their own without the 'mystic' intervention of a doctor. Doctor's role apart from organisation, management and supervision which is extremely important may well become little less restricted than I.V. therapy.

6. Still second question remains : how can ORT help break the vicious cycle of malnutrition and infection ?

Picture is a bit complicated here. No doubt infection interrupts the physical growth of a child but it also suppresses the appetite because of acidosis. ORT corrects this acidosis even when the diarrhoea has not subsided completely, thus restoring the appetite. Unfortunately this fact cannot be used with advantage. This is because most mothers won't feed the child at this stage. The combination of cultural factors and persistent acidosis in incompletely treated child appears to be a major factor in initiating the vicious cycle. ORT can take care of appetite part of the combination. Cultural factors must be modified by patient persistent persuasion of the mothers.

7. How can we distinguish between those who can be safely treated with ORT and who would need I.V. therapy ?

For mild and moderate dehydration ORT should be

used. Only in presence of shock, I. V. therapy should be initiated. Here too as soon as initial rehydration is achieved ORT may be started.

8. What should be replacement policy?

Fluid replacement is conveniently divided into two phases. The first, rehydration, consists of *rapid* replacement of the water, sodium, and bicarbonate lost up to that time. At the end of this phase the patient may continue to have rapid loss by stool but should be in a state of corrected water and electrolyte balance and no longer have serious acidosis. The second phase, *maintenance*, is the period during which continuing stool losses are replaced volume per volume as they occur. This continues until diarrhoea ceases.

9. How the fluid requirements can be estimated and how to go ahead with fluid therapy?

The objective is to estimate the volume of the fluid deficit which the patient has developed since the onset of diarrhoea. This is done by weighing the patient and estimating his degree of dehydration from the signs present.

Mild dehydration (slightly decreased skin turgor, tachycardia, thirst): represents a fluid deficit of about 5% of mean body weight. Lesser degree of dehydration may manifest only as increased thirst and watery diarrhoea. In *adults* initial therapy should be 15 ml/kg/hr—about 600 ml/hr for a 40 kg adult. This is continued for four hours. At this stage the adequacy of rehydration should be confirmed, (for the adequacy criteria see below). There after *maintenance* fluids must be started.

The aim now is to provide an amount equalling 1.5 times the stool volume. At first about 700 ml/hr for the first four or six hours after rehydration, (the range 300 to 1200). During this period individual rate of stool becomes apparent. During subsequent four-hour period the intake should be 1.5 times the output of the preceding four-hour period. If the vomiting occurs its volume should be estimated and added to the volume of oral solution. Additional water may be given if the patient so desires. Patients may eat while receiving oral maintenance therapy, and are encouraged to do so.

In *children* the same guideline apply. Fluids can be given by a spoon or from cup, or by nasogastric tube. Children permitted to drink freely will usually rehydrate themselves in four to six hours. If an infant is too weak to drink, intravenous rehydration must be employed. The reference weight of a child may be taken as weight at the time of first presentation plus the estimated fluid deficit at that time. Weight gain after rehydration must not exceed first weight plus 10% if this occurs, excessive fluid has been given. Periorbital and facial oedema are early signs of over hydration.

For *maintenance* in children the accurate measurement of stool losses is difficult, requiring greater dependence on clinical observation and body weight to determine fluid requirements. Children, after rehydration would need about 5 to 15 ml/kg/hr, depending on stool rate. They should be allowed to drink as much as they want; this permits most children to replace their own fluids satisfactorily. For those children who get tired of drinking or stool rate is too high nasogastric infusion may be used. A regular diet can be begun shortly after

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rehydration, though milk may have to be withheld in some children because of transient lactose intolerance. In case of infants as soon as stool volume begins to decrease and the stool becomes firmer the oral solution can be given alternatively with breast milk.

Moderate dehydration : (definitely decreased skin turgor, postural hypotension, tachycardia, weak pulse, increased thirst). It represents a fluid deficit of about 8% of body weight. This would be 80 ml/kg. Initial therapy should be 25 ml/kg hr. Again as discussed above the adequacy of rehydration must be confirmed. Rates of stool loss vary from 100 to 1000 ml/hr, being greatest in first 24 hours. Basic idea of maintenance remains the same.

Severe dehydration (severely decreased skin turgor, hypotension, stupor or coma, sunken eyes or fontanelle weak or absent radial pulse, cynosis of extremities, oliguria or anuria, shock) : represents a fluid deficit of 10-11% of body weight. This would be 100-110 ml/kg.

I. V. fluids are essential for the treatment of severe dehydration. I. V. rehydration should be accomplished within two hours. 40% (40 ml/kg) of fluid deficit should be made good as soon as possible (15 minutes). The remainder (60 ml/kg) is given within two hours. As to the maintenance therapy most of the time ORT can be restored to.

10. How the adequacy of rehydration is to be Judged?

1. Return of pulse to normal strength and rate.
2. Return of skin turgor to normal.
3. Return of feeling of comfort to the patient.

Children who are stuporose or comatose at the onset of

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treatment may not become fully alert for 12-24 hours despite adequate rehydration.

4. Return of normal fullness to the neck veins.
5. Weight gain.

Persons with severe dehydration should gain about 10% in body weight after rehydration. This is specially useful guide to the rehydration in children.

6. Return of urine output to normal.

This usually occurs within 12-24 hours after initial rehydration.

11. Measurement of stool losses seems very crucial. Is there a simple but effective method to measure the stool output?

Yes indeed there is ! What is needed is a number of cholera beds, which is nothing but any cot which is provided with a central hole 23 cm (9 in) in diameter beneath the patients' buttocks. A rubber sheet with a central sleeve passing through the hole covers bed. All stool is easily passed through this hole and collected for measurement in a bucket beneath the bed. Urine should be passed separately from stool if possible.

12. Is there a place for other adjuncts in gastro-enteritis?

Tetracyclines, furazolidine and chloramphenicol have very decisive place in cholera. Tetracyclines for adults 500 mg/kg orally every six hours for 48 hours. In children 50 mg/kg divided in four equal doses. This will reduce the duration of diarrhoea by 50% to an average of 2 days, the volume of diarrhoea by 60%, and the duration of

vibrio excretion to an average of one day and maximum of 48 hours. Until the full rehydration is achieved tetracycline should not be given because it would aggravate the vomiting. There is no need for parenteral tetracyclines. Furazolidine in the dose of 5 mg/kg per day divided into four doses in children and 100 mg every six hours in adults should be given for 72 hours. Routine use of antibiotics in diarrhoea is dangerous.

As to the use of anti-diarrhoeals one needs to be even more careful. Antiperistaltic agents like Lomotil have been noted to prolong the duration of diarrhoea and fever and also excretion of bacteria of dysentery; Small bowel peristalsis is a major host defence mechanism against enteric pathogens; disruption of effective peristalsis reduces the minimum number of organisms necessary to initiate infection by increasing the time available for organism proliferation, toxin production, and mucosal invasion. Similarly in case of kaolin, an objective assessment has recently shown that it was no more effective than placebo in reducing the frequency and water content of stools. Anti-emetics are not needed. As soon as acidosis is corrected the vomiting is bound to stop.

*See Appendix II and III
for some relevant material on management of diarrhoea and
dehydration.*

Political Dimensions of Health and Health Services

D. Banerji



"On week-ends, I always become rural oriented."

Health services are one of the main factors influencing the health status of a population. Health of a population is also influenced, sometimes even more significantly, by such social and economic factors as nutrition, water supply, environmental sanitation, housing, education, income and its distribution, employment, communication and transport, and the social structure.

As are the other factors influencing the health of the community, the health services are usually a function of the political system of a community. Political forces play a dominant role in the shaping of health services of a community through decisions on resource allocation, manpower policy, choice of technology, and the degree to

which the health services are to be made available and accessible to the population, for instance.

It is now being gradually realised that, in addition to being used as an instrument for alleviation of the suffering caused by diseases in individuals and in communities, health services have also been used as a political device to increase dependence for exploitation of one class by another and to promote certain vested market interest. It is of utmost importance to identify, isolate, and neutralise these negative aspects of the health services and reinforce the positive contribution towards the alleviation of suffering as a prelude to their use as a lever for bringing about social and economic improvement of the exploited people.

A very broad historical analysis of the evolution of health problems and health practices under different social, economic and political conditions might provide a clear perspective for understanding the different political dimensions of health services. With such a perspective, it will be possible to work out a framework for spelling out another development in the health services and to use it as a means to alleviate the suffering due to diseases.

POLITICAL HISTORY OF HEALTH AND HEALTH SERVICES

The Pre-industrial era

Essentially, the health problems of a community the cultural meaning of these health problems, and the ways in which the community deals with them—often called the health culture of the community—is the product of interaction between the way of life of that community on

one hand and, using the term in the widest sense, its environment, on the other. In the pre-industrial era of the history of man, different communities had developed their health culture as an essential component of their overall way of life. Undoubtedly, at this stage of man's history, as the way of life was, by and large, rather 'simple', so was the health culture. However, the essential point here is that the health cultures of the communities were in harmony with their total cultures, and these total cultures were such that the health services were principally used for the purpose of the alleviation of suffering. Urbanisation the institution of slavery, mining activities, and warfare did often lead to the disruption of this equilibrium and to the formation of a new one which was often unfavourable to the people. However, because of the relatively small proportion of the population involved and because the health culture was still very rudimentary in form, their impact on the total population of the country was rather limited, and less destructive.

The Industrial Revolution

The industrial Revolution brought about drastic changes in this equilibrium, affecting social, economic and political relations as well as health culture. Technology became a potent force in the hands of the exploiting classes. A large number of labourers who were employed in factories in the early phases of the Industrial Revolution had to suffer poverty, hunger, long working hours under trying conditions, inadequate clothing, overcrowding, poor housing, and filthy environmental conditions. This, in turn, caused widespread suffering due to such health problems as undernutrition, malnutrition, high infant and

maternal mortality rates, and high incidence of small-pox, typhus, cholera, dysenteries, tuberculosis, typhoid, worm infestations and such other communicable diseases. It is noteworthy that the rapid growth of the western system of medicine during the Industrial Revolution was not an independent phenomenon, which was actively promoted to alleviate the sufferings due to health problems that were prevailing at that time. The growth took place principally as a response to the suffering that was in fact generated by the serious disturbances in the human ecology brought about by the Industrial Revolution.

It is also ironical that, when such widespread suffering created a political and social counter-reaction and when it was realised that the very suffering of the people was threatening industrial production and profits, the same technological forces which had earlier caused so much depredation were deployed by the captains of industry, who also manipulated political power, to develop the Western Medical System. Economists, who had hitherto been looking down on medical expenditure as a mere consumption item, came to realise that allocation on health care can also be an investment—an investment for increasing the productivity of labour. Concurrently, and principally because of internal tensions and conflicts within the social and political system of the industrialised countries, the Welfare State movement made rapid gains in many of these countries. These two considerations—namely, increased productivity through the introduction of health services and the movement towards a Welfare State—acted synergistically to increase several-fold the trickling down of health-care services to the segments of the populations in these industrialising countries which

were hitherto unserved or under-served.

This brief analysis, of the evolution of the health problems in industrialising countries and the development of medical and public health services to deal with them, can also explain why the very technological forces, which allegedly enabled the industrialised countries to 'conquer' the earlier health problems, were also instrumental in creating conditions which actively promoted the '*second generation*' of health problems; automobile accidents, much more extensive prevalence of mental health conditions, problems of the elderly, alcoholism and drug addiction. Minamata Disease stands as a cruel symbol of the consequences of depredation of the environment in reckless pursuit of greater and greater gross national product.

The Health-industry

Yet another motive force for the growth of health-care system in the industrial countries has been the recognition of health service system by the business world as an 'industry.' The 'health industry' is now considered a most thriving social service-based industry, with virtually endless potential for swelling the gross national product. As a result of the concerted efforts by business interests in the health industries, through a classical style of sales promotion, people have been made to enhance their dependence on this industry to enable it to maintain its rapid rate of growth; indeed, an entirely new set of folklore has been created to promote greater and greater dependence on the medical establishment to enable it to grow from strength to strength.

The medical establishment not only generated newer and newer health needs, but also determined how these

needs were to be met only through the establishment. Its growth has taken place at such a fast pace that the dependence elements of the health-care system have far outstripped the alleviation of suffering elements.

Worse still, this monstrous growth of the dependence elements, apart from causing all the damage that such growth causes through its exploitative activities, has actually started to *cause suffering* to its own consumers by actively creating diseases—the *'iatrogenic diseases'*, as Illich puts it. This pattern of growth of the medical establishment is proving to be its own nemesis. It might well turn out that this medical nemesis is merely the tip of the iceberg of the nemesis of the entire social, economic and political systems which are engaged in a wild chase towards increasing the GNP.

The Health Services in the Colonial Countries

An even worse fate was in store for countries which were colonised by the industrialised countries. The launching of the health services in these countries was subservient to the overall imperial policy of exploitation, expropriation, and plunder of these countries in order to promote the economic growth of the colonial powers at home. Unlike the industrial European countries, the colonial countries were plunged straight from a pre-industrial health culture to a complex alien pattern of colonially based health culture. This caused a most traumatic disruption in the way of life of the people in these countries. Colonialisation created conditions which led to decay and degeneration of the pre-existing health cultures, some of which had attained an astonishingly high level of development for self-sufficiency for the

alleviation of the suffering (as in the case of Ayurveda in India).

Gradually, as the masses of people became increasingly and rapidly impoverished and pauperised, they were unable to maintain the health services, which they had developed as a component of their overall way of life. This vacuum was filled by faith-healers, sorcerers, magicians, and other quack medical practitioners, who exploited the suffering of the people for their own gains. In addition to that, unlike the European countries, the colonial rulers were not much concerned about the public opinion of the suffering population, because these were physically subjugated by the sheer brute force of the industrial power of the colonial governments. They could also get away with a much more ruthless oppression of the working classes. For the same reasons, they could sustain this oppression for a much longer period. There was also no Welfare State lobby; allocations for health continued to be considered by economists to be allocations for consumption, right up to the very end of the colonial rule, since the exploiting classes had an abundance of cheap labour in spite of tremendous health casualties.

Health services, which were shaped on the Western industrial model, were made available only to the ruling classes—namely, the army, civil services, and the European trading community, and to the native gentry auxiliary to the ruling classes which constituted a very small fraction of the native population. Christian missionaries enjoyed State patronage in the distribution of health services as a vehicle to preach the gospel—and, often to glorify the colonial rule.

Ironically, by ensuring that they have access to the health services available, the exploiting classes could acquire additional strength to exploit further the masses. On the other hand, the oppressed masses became weaker and more vulnerable to exploitation because colonialism brought along with it the destruction and decay of their pre-existing health practices. If therefore, this situation is reversed and health services are provided to the masses, this could serve as a lever for social and economic improvement of the people.

Institutions for education and training of health personnel at lower levels were opened to meet the very limited needs of the colonial rulers. For higher levels of education, a highly selected group of the natives was given the honour of studying in medical institutions in the country of the rulers so that they could undergo a thorough acculturation and become a prototype of what Lord Macaulay had described as the 'Brown Englishman' who would loyally serve the foreign ruling classes in their native lands. In this process of socialisation, the natives imbibed the entire 'culture' of the medical establishment of the Western industrial countries, including its fast-growing elements of dependence and commercialisation.

The Post-independence Period

In the post-colonial period, in most of the colonial countries, a native Western-educated took over power from the colonialists. To retain power, and further strengthen it, the native elites actively became heavily dependent on the ex-colonial powers and the latter enthusiastically responded by providing 'aid' of various measures and kind and used it as a weapon to retain their

control over the political, economic and social life of these countries. These newly independent countries thus not only followed broadly the old colonial pattern of health services which subserved mostly small elite and urbanised classes, but, as a result of rapid increase in dependence and commercialisation of the medical establishment within the ex-colonial countries, these privileged class-oriented and urban-based health services started to absorb more and more of the national resources as they also developed strong overtones of dependence and commercialisation—rapid expansion of the market for the drug industry, both foreign and native, more specialisation and professionalisation and more and more of sophisticated medical institutions.

Social scientists have been mobilised to provide an aura of legitimacy to this system and they dutifully raised such value-loaded issues as 'modernisation' as against traditionalism and 'urban culture' as against the traditional and folk culture. Health educators were brought into being to 'teach' the traditional people the virtues of 'modern' health beliefs and health services, with all their trappings of dependency and profit motives.

An extreme, but also a very alarming, facet of such political subversion of medical knowledge can be found in the creation of the idea that severe malnutrition in early life causes permanent mental retardation. From an objective scientific standpoint, at no time has there been reasonably convincing and sound scientific evidence, to support this idea. But because of its political potential, efforts were made by interested people to gloss over the scientific limitations. A powerful promotion drive was launched to propagate this idea. Some highly placed

scientists also identified themselves with the idea.

These efforts culminated into a statement from the then Secretary-General of the United Nations, expressing grave alarm at the alleged spectre of widespread mental retardation being caused to a large segment of the poverty-stricken populations in the countries of the Third World because of what was then termed the 'Protein Gap.' Incidentally, later research showed that the so-called Protein Gap was more a creation of the global protein food industries, rather than an outcome of sound scientific research. Subsequently, careful scientific research has underlined the primacy of the poverty induced 'Calorie Gap' over the so-called Protein Gap. From a political angle, it can be surmised that these experiments were actually custom-made for the ruling classes to enable them to contend that, as the poor and hungry masses were mentally retarded, they have to be guided by the ruling classes and will have to be dependent on them. Aggressive campaigns to promote the sale of baby foods, vitamins and tonics (often with active help of physicians and health educators) and colossal profits extracted by the drug industry from the desperately poor population are some other consequences of the growth of dependent and commercialised health services in many of the dependent countries of the Third World.

Formation of alternatives is thus essentially a political question. A crucial determinant of the nature of an alternative is whether there is a political system which continues to encourage a country to be ruled by an oligarchy or whether it actively promotes a change in the social system which enables the masses, particularly the underprivileged and the underserved, to actively parti-

cipate and to have their say in the affairs of their country.

Under a political system which sustains the *status quo*—which perpetuates an oligarchy—alternative systems are formulated either to find more effective approaches to serve the ruling oligarchy or, much worse, to provide an aura of legitimacy to an obviously unjust social system by arousing false hopes among the underprivileged and the underserved.

HEALTH WORK AS A LEVER FOR SOCIAL AND ECONOMIC CHANGE

While it is now being gradually realised that it is unrealistic to expect improvement in the health status of the population of a country without appropriate political, economic and social action, it is often overlooked that efforts to alleviate the suffering caused by health problems can, in its turn, contribute to the initiation of such action. In this context, formulation and implementation health care system, which is specifically designed to alleviate the suffering due to health problems within the prevailing constraints in the country acquires considerable significance.

In the first place, the very alleviation of suffering has political significance because, at least in this field, it narrows the gap between the ruling classes and the masses. Because of this the masses are in a somewhat more advantageous position to wrest their rights from the ruling classes. Secondly, the health services also provide an entry point to change agents who would make use of this opportunity to work with the people to initiate changes in the other social and economic fields. Promotion of

alternative health care system may prove to the people that they can create better conditions for solving their health problems. By generating such social awareness health work may turn out to be a lever for promoting similar developments in other social and economic fields, such as : education, employment, land reforms, cooperative movement, legal protection and social justice. In short, it has the potential of initiating a chain reaction which will lead to a rapidly increasing democratisation of the masses. *A campaign for active promotion of a people oriented alternative health care system thus in fact becomes a potent tool for pressing for change in the political system.*

When democratisation takes place, medical technology is subordinated to the interests of the community : the health services system is demystified, deprofessionalised, debureaucratised and decommercialised to provide better services to the masses. Such a subordination of the medical technology to the community needs should lead to basic changes in the entire "culture" of the health services system : changes in the administrative structure, changes in the value orientation of the personnel within the services, changes in the institutions for education and training of health workers and changes in the approach to research.

It is to be noted that formulation of such an alternative not only requires removal of the dependence and commercial elements that have infiltrated so heavily and extensively in the so-called modern system of medicine; but it will also need considerable innovative talents to devise alternative technologies and health-care delivery agencies which are in consonance with available resources, epidemiological characteristics of the problems and the

cultural and social setting of the population to be served. Under such changed circumstances, the challenge in the field of research will be to develop a holistic research perspective which covers the entire health system.

This, however, does not imply that action will have to wait till findings from complex, time consuming researches are made available. In fact, while such researches go on, the same political forces will actively press decision makers and research workers to come out with specific alternative programmes for immediate action that can be formulated by making judicious use of all available data and, where required, supplement the data with intelligent hunches. A built-in feedback system and an ongoing research on the alternatives will ensure that the suggested alternative for immediate action is constantly monitored and its performance improved.

An obvious framework for suggesting an alternative to the existing approach of "selling" some technology to the people will be to *start with the people*. This will ensure that technology is harnessed to the requirements of the people, as seen by the people themselves—i.e. technology is subordinated to the people. *This alternative enjoins that technology should be taken with the people, rather than people taken with technology, by "educating" them.*

Based on their way of life, i.e., on their culture, people in different communities have evolved their own way of dealing with their health problems. This concept forms the starting point, indeed the very foundation of the suggested alternative for immediate action. People, on their own, seek out measures to deal with their health problems. Meeting of the felt needs of the people which also happen to be epidemiologically assessed needs receive the top

priority in such a framework for an alternative. People should not be "educated" to discard the measures that they have been adopting unless a convincing case is made to show that taking into account their own perspective of the problems and under the existing conditions of resource constraints, it is possible to have an alternative technology which will yield significantly greater benefits to people in terms of alleviation of the suffering that is caused by a health problem.

As is the way of life, health behaviour of a community is a dynamic phenomenon: it changes with changes in the epidemiology of the health problems, available knowledge relating to such problems, availability of resources and other such considerations. Therefore, to be based on such a dynamic phenomenon, the alternative for immediate action is required to be correspondingly accommodative.

More detailed suggestion for immediate action concerning the major components of an alternative framework which is based on the above concepts are as follows.

Medical Care

(1) Community members may be encouraged to make maximum use of *self-care* procedures through continued use of various *home remedial measures*.

(2) Services of locally available practitioners of various systems of medicine should be used as a supplement.

(3) Another supplementary community resource can be created by providing training to community selected primary health workers who are specifically drawn from among the weaker sections, who can make available home remedies and remedies from the indigenous and western

systems of medicine for meeting the medical care needs. Services of full-time health auxiliaries may be used only to take more complicated cases and those which need more specialised care.

Maternal and Child Health Services

Here also the key workers are those who have thus far been providing services to the community—the family members assisting in child birth, child rearing and the traditional birth attendants. The birth attendant or any other community selected member can be trained as a primary health worker to work with the members of the community to improve the work that is already being carried out there and to provide assistance when called for. They, in turn are backstopped by the full-time auxiliary health workers and by the primary health managerial physician and other referral services.

Findings concerning oral rehydration of children with severe diarrhoea provides a very valuable technological device which can be used by the mothers themselves when their children suffer from diarrhoea, with birth attendants, primary health workers and other full-time employees providing support to these mothers. Primary health workers, similarly, can be valuable delivery agents for providing nutritional supplements, while the mother is trained to monitor weight gain of her child. The primary health worker again can organize the community resources to provide some form of a creche to the children of the mothers who have to go out to work in the field.

Control of Communicable Diseases

Even with existing strategies which were mostly deve-

loped to deal with many communicable diseases as "vertical" programmes, primary health care workers and other community level personnel can take over many of the duties that are at present being carried out by specialised unipurpose health workers. Surveillance of malaria and smallpox, treatment of cases of leprosy, filaria and trachoma, spraying of houses with insecticides the water management, including vector control, are some of the duties that can be taken over by the community. Demystification of diagnosis and treatment of tuberculosis patients has made it possible to bring about a shift in the work from trained professionals to workers at the community level and at the level of auxiliary workers at the health centre. Similar studies concerning other communicable diseases can also lead to demystification and simplification of technologies so that they could be made use of by the community itself or by auxiliaries with limited training.

Fertility Regulation Programme

The primary health care approach, particularly when it is a component of a rural development programme, is likely to have a profound influence on the fertility regulation measures. Education of women, opening up of employment opportunities for them, their participation in community activities, greater social justice and fall in the maternal and child mortality and morbidity in particular and mortality and morbidity rates of the total population in general, are likely to materially change the level of motivation for a small family norm in the community. Rise in the age at marriage of men and women is expected to have a direct demographic impact. Even with the

limited frame-work of primary health care, methods such as the use of condoms and other "conventional" contraceptives, coitus interruptus, the rhythm method and the contraceptive pill may acquire much greater significance with the people.

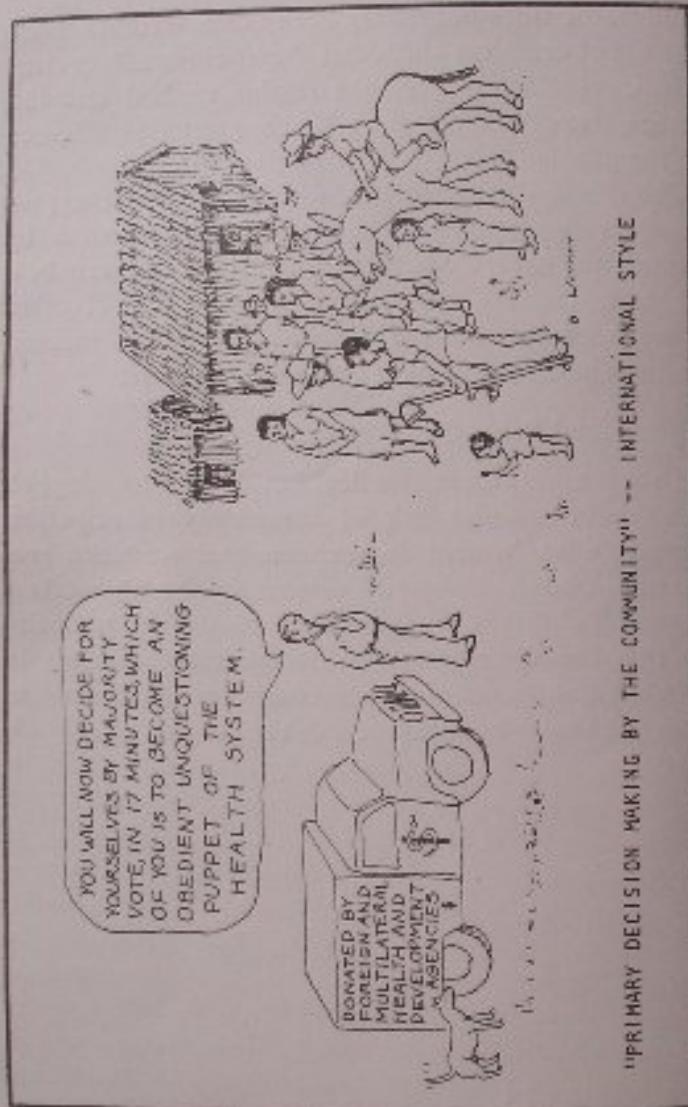
Community health workers will be the most appropriate persons to support such community activities by providing the needed contraceptives. They also can be a vital link for the community to make use of other methods such as male and female sterilization, induced abortion and IUD insertion at the health centre.

Environmental Sanitation Programme

Thus far progress in this field has been very sluggish due to heavy cost and lack of community participation. *Community involvement in environmental sanitation programmes* through efforts of community health workers and interdisciplinary research efforts to develop technologies that are appropriate to the specific conditions in different rural communities will contribute significantly in increasing the cost-effectiveness of the programme.

The Village Health Worker
—Lackey or Liberator?

David Werner



Throughout Latin America, the programmed use of health auxiliaries has, in recent years, become an important part of the new international push of 'community oriented' health care. But in Latin America village health workers are far from new. Various religious groups and non-government agencies have been training *promotores de salud* or health promoters for decades. And to a large (but diminishing) extent, villagers still rely, as they always have, on their local curanderos, herb doctors, bone setters, traditional midwives and spiritual healers. More recently, the *medico practicante* or empirical doctor has assumed in the villages the same role of self-made practitioner and prescriber of drugs that the neighbourhood pharmacist

has assumed in larger towns and cities.

Until recently, however, the respective Health Departments of Latin America have either ignored or tried to stamp out this motley work force of non-professional healers. Yet the Health Departments have had trouble coming up with viable alternatives. Their Western-style, city-bred and city-trained M.D.s not only proved uneconomical in terms of cost effectiveness; they flatly refused to serve in the rural area.

The first official attempt at a solution was, of course, to produce more doctors. In Mexico the National University began to recruit 5000 new medical students per year (and still does so). The result was a surplus of poorly trained doctors who stayed in the cities.

The next attempt was through compulsory social service. Graduating medical students were required (unless they bought their way off) to spend a year in a rural health center before receiving their licenses. The young doctors were unprepared either by training or disposition to cope with the health needs in the rural area. With discouraging frequency they became resentful, irresponsible or blatantly corrupt.

Next came the era of the mobile clinics. They, too, failed miserably. They created dependency and expectation without providing continuity of service. The net result was to undermine the people's capacity for self-care.

It was becoming increasingly clear that provision of health care in the rural area could never be accomplished by professionals alone. But the medical establishment was—and still is—reluctant to crack its legal monopoly.

At long last, and with considerable financial cajoling

from foreign and international health and development agencies, the various health departments have begun to train and utilize auxiliaries. Today, in countries where they have been given half a chance, auxiliaries play an important role in the health care of rural and periurban communities. And if given a whole chance, their impact could be far greater. But, to a large extent, politics and the medical establishment still stand in the way.

* * *

My own experience in rural health care has mostly been in a remote mountainous sector of Western Mexico, where, for the past 12 years, I have been involved in training local village health workers, and in helping foster a primary health care network, run by the villagers themselves. As the villagers have taken over full responsibility for the management and planning of their program, I have been phasing out my own participation to the point where I am now only an intermittent advisor. This has given me time to look more closely at what is happening in rural health care in other parts of Latin America.

Last year a group of my co-workers and I visited nearly 40 rural health projects, both government and non-government, in nine Latin American countries (Mexico, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Venezuela, Colombia and Ecuador). Our objective has been to encourage a dialogue among the various groups, as well as to try to draw together many respective approaches, methods, insights and problems into a sort of field guide for health planners and educators, so we can all learn from each other's experience. We specifi-

cally chose to visit projects or programs which were making significant use of local, modestly trained health workers or which were reportedly trying to involve people more effectively in their own health care.

We were inspired by some of the things we saw, and profoundly disturbed by others. While in some of the projects we visited, people were in fact regarded as a resource to control disease, in others we had the sickening impression that disease was being used as a resource to control people. We began to look at different programs, and functions, in terms of where they lay along a continuum between two poles: community supportive and community oppressive.

Community supportive programs or functions are those which favorably influence the long-range welfare of the community, that help it to stand on its own feet, that genuinely encourage responsibility, initiative, decision-making and self-reliance at the community level, that build upon human dignity.

Community oppressive programs or functions are those which, while invariably giving lip service to the above aspects of community input, are fundamentally authoritarian, paternalistic or are structured and carried out in such a way that they effectively encourage greater dependency, servility and unquestioning acceptance of outside regulations and decisions; those which in the long run are crippling to the dynamics of the community.

It is disturbing to note that, with certain exceptions, the programs which we found to be more community supportive were small non-government efforts, usually operating on a shoestring and with a more or less sub rosa status.

As for the large regional or national programs—for all their international funding, top-ranking foreign consultants and glossy bilingual brochures portraying community participation—we found that when it came down to the nitty-gritty of what was going on in the field, there was usually a minimum of effective community involvement and a maximum of dependency-creating handouts, paternalism and superimposed, initiative destroying norms.

In our visits to the many rural health programs in Latin America, we found that primary health workers come in a confusing array of types and titles. Generally speaking, however, they fall into two major groups:

<i>auxiliary nurses or health technicians</i>	<i>health promoter or village health workers</i>
—at least primary education plus 1-2 years training	—average of 3rd grade education plus 1-6 months training
—usually from outside the community	—usually from the community and selected by it
—usually employed full time	—often a part time health worker supported in part by farm labor or with help from the community
—salary usually paid by the program (not by the community)	—may be someone who has already been a traditional healer

In addition to the health workers just described, many Latin American countries have programs to provide minimal training and supervision of traditional midwives. Unfortunately, Health Departments tend to refer to these programs as '*Control de Parteras Empiricas*'—Control of Empirical Midwives—a terminology which too often reflects an attitude. Thus to Mosquito Control and Leprosy Control has been added Midwife Control. (Small wonder so many midwives are reticent to participate!) One again, we found the most promising work with village midwives took place in small non-government programs. In one such program the midwives had formed their own club and organized trips to hospital maternity wards to increase their knowledge.

* * *

What skills can the village health worker perform? How well does he perform them? What are the limiting factors that determine what he can do? These were some of our key questions when we visited different rural health programs.

We found that the skills which village health workers actually performed varied enormously from program to program. In some, local health workers with minimal formal education were able to perform with remarkable competence a wide variety of skills embracing both curative and preventive medicine as well as agricultural extension, village cooperatives and other aspects of community education and mobilization. In other programs—often those sponsored by Health Departments—village workers were permitted to do discouragingly little. Safeguarding the medical pro-

THE VILLAGE HEALTH WORKER

fession's monopoly on curative medicine by using the standard argument that prevention is more important than cure (which it may be to us but clearly is not to a mother when her child is sick) instructors often taught these health workers fewer medical skills than many villagers had already mastered for themselves. This sometimes so reduced the people's respect for their health worker that he (or usually she) became less effective, even in preventive measures.

In the majority of cases, we found that external factors, far more than intrinsic factors, proved to be the determinants of what the primary health worker could do. See Outline 1.) We concluded that *the great variation in range and type of skills performed by village health workers in different programs has less to do with the personal potentials, local conditions or available funding than it has to do with the preconceived attitudes and biases of health program planners, consultants and instructors.* In spite of the often repeated eulogies about "primary decision making by the communities themselves", seldom do the villagers have much, if any, say in what their health worker is taught and told to do.

The limitations and potentials of the village health worker—what he is permitted to do and, conversely, what he could do if permitted—can best be understood if we look at his role in its social and political context. In Latin America, as in many other parts of the world, poor nutrition, poor hygiene, low literacy and high fertility help account for the high morbidity and mortality of the impoverished masses. But as we all know, the underlying cause—or more exactly, the primary disease—is inequity: inequity of wealth, of land, of educational opportunity,

of political representation and of basic human rights. Such inequities undermine the capacity of the peasantry for self care. As a result, the political/economic powers-that-be assume an increasingly paternalistic stand, under which the rural poor become the politically voiceless recipients of both aid and exploitation. In spite of national, foreign and international gestures at aid and development, in Latin America the rich continue to grow richer and the poor poorer. As anyone who has broken bread with villagers or slum dwellers knows only too well: *health of the people is far more influenced by politics and power groups, by distribution of land and wealth, than it is by treatment of prevention of disease.*

Political factors unquestionably comprise one of the major obstacles to a community supportive program. This can be as true for village politics as for national politics. However, the politico-economic structure of the country must necessarily influence the extent to which its rural health program is community supportive or not.

Let us consider the implications in the training and function of a primary health worker :

If the village health worker is taught a respectable range of skills, if he is encouraged to think, to take initiative and to keep learning on his own, if his judgement is respected, if his limits are determined by what he knows and can do, if his supervision is supportive and educational, chances are he will work with energy and dedication, will make a major contribution to his community and will win his people's confidence and love. His example will serve as a role model to his neighbors, that they too can learn new skills and assume new responsibilities, that self-improvement is possible. Thus the village

health worker becomes an internal agent-of-change, not only for health care, but for the awakening of his people to their human potential and ultimately to their human rights.

However, in countries where social and land reforms are sorely needed, where oppression of the poor and gross disparity of wealth is taken for granted and where the medical and political establishments jealously covet their power, it is possible that the health worker I have just described knows and does and thinks too much. Such men are dangerous ! They are the germ of social change.

So we find, in certain programs, a different breed of village health worker is being molded ... one who is taught a pathetically limited range of skills, who is trained not to think, but to follow a list of very specific instructions or 'norms', who has a neat uniform, a handsome diploma and who works in a standardized cement block health post, whose supervision is restrictive and whose limitations are rigidly predefined. Such a health worker has a limited impact on the health and even-less on the growth of the community. We—or more usually she—spends much of her time filling out forms.

In a conference I attended in Washington last December, on Appropriate Technology in Health in Developing Countries, it was suggested that "*Technology can only be considered appropriate if it helps lead to a change in the distribution of wealth and power.*" If our goal is truly to get at the root of human ills, must we not also recognize that, likewise, health projects and health workers are appropriate only if they help bring about a healthier distribution of wealth and power ?

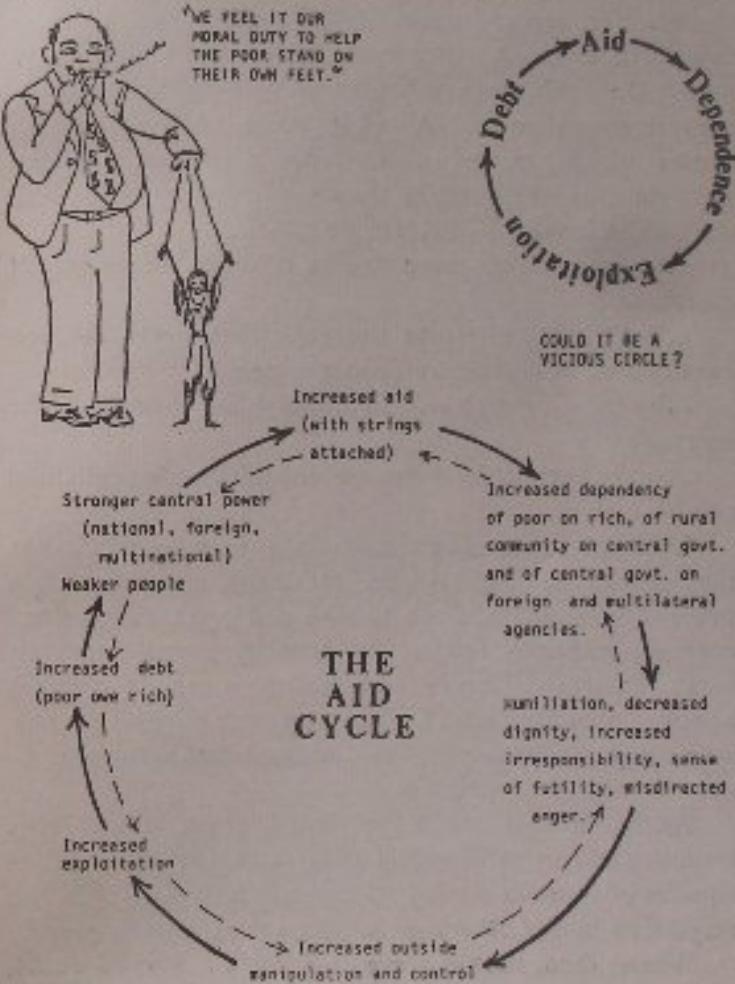
Outline I

Factors that Influence What a Primary Health Worker Can Do

<i>Intrinsic factors</i>	<i>Extrinsic factors</i>
— cultural background	— factors influencing personal potential of VHW
— level of literacy	— outside decisions and control
— personal factors : compassion, integrity, judgement, initiative, perspectiveness, special talents, learning capacity	— ability or inability of instructors and supervisors to build upon the existing knowledge, skills and cultural perspective of the VHW
— acceptance of VHW and program by community	— available funding (from outside the community)
— health priorities within the community	— local conditions
— available funding (from within the community)	

HEALTH CARE : WHICH WAY TO GO ?

Fig. 3 Too often aid and exploitation go hand in hand.



We say prevention is more important than cure. But how far are we willing to go? Consider diarrhoea:

Each year millions of peasant children die of diarrhoea. We tend to agree that most of these deaths could be prevented. Yet diarrhoea remains the number one killer of infants in Latin America and much of the developing world. Does this mean our so-called 'preventive' measures are merely palliative? At what point in the chain of causes which makes death from diarrhoea a global problem (see Outline #2) are we coming to grips with the real underlying cause. Do we do it...

...by preventing some deaths through treatment of diarrhoea?

...by trying to interrupt the infectious cycle through construction of latrines and water system?

...by reducing high risk from diarrhoea through better nutrition?

...or by curbing land tenure inequities through land reform?

Land reform comes closest to the real problem. But the peasantry is oppressed by far more inequities than those of land tenure. Both causing and perpetuating these crushing inequities looms the existing power structure: local, national, foreign and multinational. It includes political, commercial and religious power groups as well as the legal profession and the medical establishment. In short it includes...ourselves.

As the ultimate link in the causal chain which leads from the hungry child with diarrhoea to the legalized inequities of those in power, we come face to face with the tragic flaw in our otherwise human nature, namely *greed*.

Where, then, should prevention begin? Beyond doubt,

anything we can do to minimize the inequities perpetuated by the existing power structure will do far more to reduce high infant mortality than all our conventional preventive measures put together. We should, perhaps, carry on with our latrine-building rituals, nutrition centres and agricultural extension projects. But let's stop calling it prevention. We are still only treating symptoms. And unless we are very careful, we may even be making the underlying problem worse...through increasing dependency on outside aid, technology and control.

But this need not be the case. *If* the building of latrines brings people together and helps them look ahead, *if* a nutrition centre is built and run by the community and fosters self-reliance, and *if* agricultural extension, rather than imposing outside technology encourages internal growth of the people towards more effective understanding and use of their land, their potentials and their rights... then, and only then, do latrines, nutrition centres and so-called extension work begin to deal with the real causes of preventable sickness and death.

This is where the village health worker comes in. It doesn't matter much if he spends more time treating diarrhea than building latrines. Both are merely palliative in view of the larger problem. What matters is that he get his people working together.

Yes, the most important role of the village health worker is preventive. But preventive in the fullest sense, in the sense that he help put an end to oppressive inequities, in the sense that he help his people, as individuals and as a community, liberate themselves not only from outside exploitation and oppression, but from their own short-sightedness, futility and greed.

The chief role of the village health worker, at his best, is that of liberator. This does not mean that he is a revolutionary (although he may be pushed into that position). His interest is the welfare of his people. And, as Latin America's blood-streaked history bears witness, revolution without evolution too often means trading one oppressive power group for another. Clearly, any viable answer to the abuses of man by man can only come through evolution, in all of us, toward human relations which are no longer founded on short-sighted self-interest, but rather on tolerance, sharing and compassion.

I know it sounds like I am dreaming. But the exciting thing in Latin America is that there already exist a few programs that are actually working toward making these things happen—where health care for and by the people is important, but where the main role of the primary health worker is to assist in the humanization or, to use Paulo Freire's term, *conscientization* of his people.

* * *

Before closing let me try to clear up some common misconceptions.

Many persons still tend to think of the primary health worker as a temporary second-best substitute for the doctor...that if it were financially feasible the peasantry would be better off with more doctors and fewer primary health workers.

I disagree. After twelve years working and learning from village health workers—and dealing with doctors—I have come to realize that the role of the village health worker is not only very distinct from that of the doctor, but, in terms of health and well-being of a given com-

munity, is far more important.

You may notice I have shied away from calling the primary health worker an 'auxiliary'. Rather I think of him as the primary member of the health team. Not only is he willing to work on the front line of health care, where the needs are greatest, but his job is more difficult than that of the average doctor. And his skills are more varied. Whereas the doctor can limit himself to diagnosis and treatment of individual 'cases', the health worker's concern is not only for individuals—as people—but with the whole community. He must not only answer to his people's immediate needs, but he must also help them look ahead, and work together to overcome oppression and to stop sickness before it starts. His responsibility is to share rather than hoard his knowledge, not only because informed self-care is more health conducting than ignorance and dependence, but because the principle of sharing is basic to the well-being of man.

Perhaps the most important difference between the village health worker and the doctor is that the health worker's background and training, as well as his membership in and selection by the community, help re-enforce his will to serve rather than bleed his people. This is not to say that the village health worker cannot become money-hungry and corrupt. After all, he is as human as the rest of us. It is simply to say that for the village health worker the privilege to grow fat off the illness and misfortune of his fellow man has still not become socially acceptable.

Forgive me if I seem a little bitter, but when you live with and share the lot of Mexican villagers for 12 years, you can't help but feel a little uncomfortable about the

HEALTH CARE : WHICH WAY TO GO ?

exploits of the medical profession. For example, Martin, the chief village medic and coordinator of the villager-run health program I helped to start, recently had to transport his brother to the big city for emergency surgery. His brother had been shot in the stomach. Now Martin, as a village health worker supported through the community, earns 1,600 pesos (\$80.00) a month, which is in line with what the other villagers earn. But the surgeon charged 20,000 pesos (\$1000.00) for two hours of surgery. Martin is stuck with the bill. That means he has to forsake his position in the health program and work for two months as a wet-back in the States—in order to pay for two hours of the surgeon's time. Now, is that fair?

* * *

No, the village health worker, at his best, is neither choreboy nor auxiliary nor doctor's substitute. His commitment is not to assist the doctor, but to help his people.

The day must come when we look at the primary health worker as the key member of the health team, and at the doctor as the auxiliary. The doctor, as a specialist in advanced curative technology, would be on call as needed by the primary health worker for referrals and advice. He would attend those 2-3% of illnesses which lie beyond the capacity of an informed people and their health worker, and he even might, under supportive supervision, help out in the training of the primary health worker in that narrowarea of health care called Medicine.

Health care will only become equitable when the skills pyramid has been tipped on its side, so that the primary health worker takes the lead, and so that the doctor is on *tap* and not on *top*.

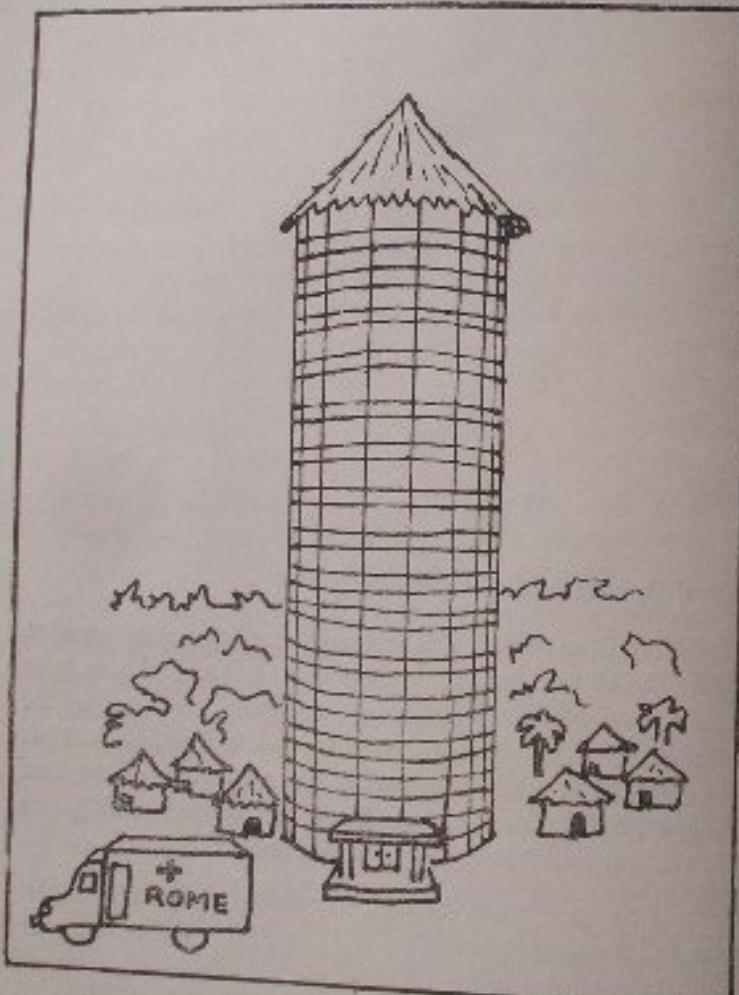
Rural Orientation of Policy Makers

Dr. M.P. Mangudkar, Chairman of the committee appointed by the Government of Maharashtra to study the state of health services in Maharashtra reported that out of the total health expenditure of Rs. 156 million by the Govt. in the state, 80% was spent on 3 cities-Bombay, Pune and Nagpur; 6.2% was spent on the district towns: 4.50% on the villages and 0.50% on the tribal areas.

Per-capita per year health expenditure by the Govt. was in Bombay 14.60 Rs., in Pune 12.17 Rs. in Nagpur 8.09 Rs. and that in the villages was the colossal sum of 13 paise !

Implimentation of the Rural Health Care Scheme

Binayak Sen



Rural Health Centre : Trying to Appear Rural !

The draft plan Govt. of India for health care services in the rural areas 1977 has come to be identified with what is only a part of the total plan—the scheme to train community health workers and dais, and thereby provide deprofessionalised, decentralised health care services in the villages of our country. Before we go on to consider this part of the plan in greater detail, it is well to remember that the plan talks of an attack "on the twin fronts of providing adequate medical care where such care is needed and to educate the people, in matters of preventive and promotive health and in particular sanitation and safe drinking water and the like." This latter, education oriented front is felt to be necessary as "the

community has tended to become servile and to depend on assistance as and when such assistance was provided. The community should become conscious of what it can do itself and when to call for assistance." The plan would like to make "each individual realise the need for simple steps in sanitation, prevention, promotion etc of health activities." The portion in quotation marks impute to the rural community, an apathy towards its own welfare, and fails to undertake a deeper analysis of what assistance would be available even if this servile community should choose to call for assistance. The impression that the plan is a shallow exercise at day-dreaming is confirmed when we consider what the draft plan goes on to call the 'programme'.

We note that there are broadly four components of the programme. Apart from (1) the dai training and (2) the community health worker scheme, there is (3) the scheme to post newly qualified doctors to rural subcentres and (4) to attach PHCs to medical-colleges. What the newly qualified doctors are expected to do at the sub-centre with a budget of Rs 1000/- a month and no infrastructure, which would justify an equal amount on total emoluments is not made clear. The Srivastava Committee has recommended that fresh graduates should not be posted directly to the rural areas. Nevertheless this plan is put forth, among other reasons, because of the effect that it will have on the clamour arising in some parts of the country on the lack of employment for medical graduates. The attachment of the PHCs to medical colleges is also expected to achieve similar purpose of 'bringing about a change in the social consciousness of the medical graduates.' The plan proposes to spend on these

efforts, a total of Rs 240.2 crores out of the projected total of Rs 521.4 crores in the first four years. Even if we discount from this amount the Rs 105.6 crores to be spent on the provision of equipment and medicine for the sub-centre doctors, this means an amount of Rs 134.6 crores. It is to be noted that more than a quarter of the total expenditure in a plan supposedly devoted to rural health is to be spent on what amounts basically to improvements in medical education.

Under the Community Health Worker scheme, the plan proposes to select one literate individual from each of the 5.8 lakh villages of the country, through the existing institutions of panchayats and Gram Sabhas. They will be trained at the PHCs at the rate of a hundred per year per PHC in batches of 20. The training programme will last for 3 months during which they will be taught "the fundamentals of health services, measures for maintaining health and hygiene, treatment of common infectious diseases, immunisations, maternity and child care, treatment of common ailments, first aid etc. They will also be given training in traditional systems, and Yogic methods of maintaining physical fitness." Thus, in 2 years time every village will have one person working as a CHW in his/her spare time for 2-3 hours a day. Immunisations of babies, distribution of vitamin A to children, treating malaria, and making blood slides will be some of the most important activities, and they will be monitored. They will be paid Rs 600/- per annum, be supplied with a kit, and be given an additional Rs 600/- a year for medicines. For their training an extra doctor will be appointed at the PHC (for another 19.25 crores) and their supervision at the place of work will be done by the

village community.

Major problems with the scheme outlined above relate to selection, training, logistics and supply, administration and supervision. The first and most important problem is that of selection. The plan envisages a process of selection by village community, ignoring the problems of rural stratification. It talks as if there is a working, decentralised democracy in our villages. The extent of this contradiction has become obvious in the few areas in which the plan has been implemented to date. The rural elite, quick in realising the potential of this new functionary, have gone about appointing whom they like. Socio-economic class and caste, and their intimate relationship with rural health problems have been completely overlooked by the makers of the plan.

The second problem is: Who will train these community health workers? Studies have repeatedly demonstrated that the PHC doctor with his lack of rural experience, his working schedule, and his pre-occupations, is not an effective trainer of paramedical personnel. The addition of a third medical doctor to the PHC (and one of the 50,000 jobless at that) will not solve the problem of training. No provision for the continuing education of the CHWs has been made in the draft plan. The manual for the CHWs is largely curative service oriented, and contains an ill defined hotch-potch of different systems of medicine. Will the single doctor appointed at the PHC be expected to be imparting training in all these systems, not to mention Yoga? And what about supervising the operations under the different systems of medicine?

The third problem is one of logistics and supply.

Firstly, during the first 2-3 years of the programme, the PHC will have to find accommodation for 6-8 dais, 20 CHWs, 8 MPWs, and 1 doctor, in addition to its normal complement of staff. Secondly, anyone familiar with the working of our PHCs would know that even the problem of maintaining drug supplies to the PHCs and the existing 15-20 field staff is an enormous unsolved problem. Who will look after supplies to the CHWs? Who examines the extra slides they send in? No answers are to be found in the draft plan.

The next problem is one of administration and supervision. When the draft plan says that the CHWs will be supervised by the "village community", in practical terms, what does this mean? What will be the relationship of the CHWs to the existing health hierarchy? Will the payment of Rs 50/- per month be enough of a bond to enable the village community to prevent the phenomenon of 'public' private practice by these people? The plan envisages that the workers performance with regard to immunisations, vitamin A supplementation and malaria treatment will be monitored. How?

When we come to the dai training programme, certain further anomalies are seen. The draft plan makes the following startling assertion—"partly due to the unsafe practices adopted by these unqualified and untrained dais, there is a large amount of neo-natal mortality, which contribute to the increase in the figure of infant mortality. This unsatisfactory position can be changed dramatically." An extensive programme of training the traditional birth attendants (dais) is proposed. Surely the obstetricians in Nirman Bhavan know better. What about maternal malnutrition & anaemia and the contribution they make

to the high incidence of premature deliveries and of low birth weight, light for date babies ? What neo-natal deaths do the untrained dais cause ? Neo-natal tetanus ? Aren't the ante-natal programmes supposed to be taking care of that ?

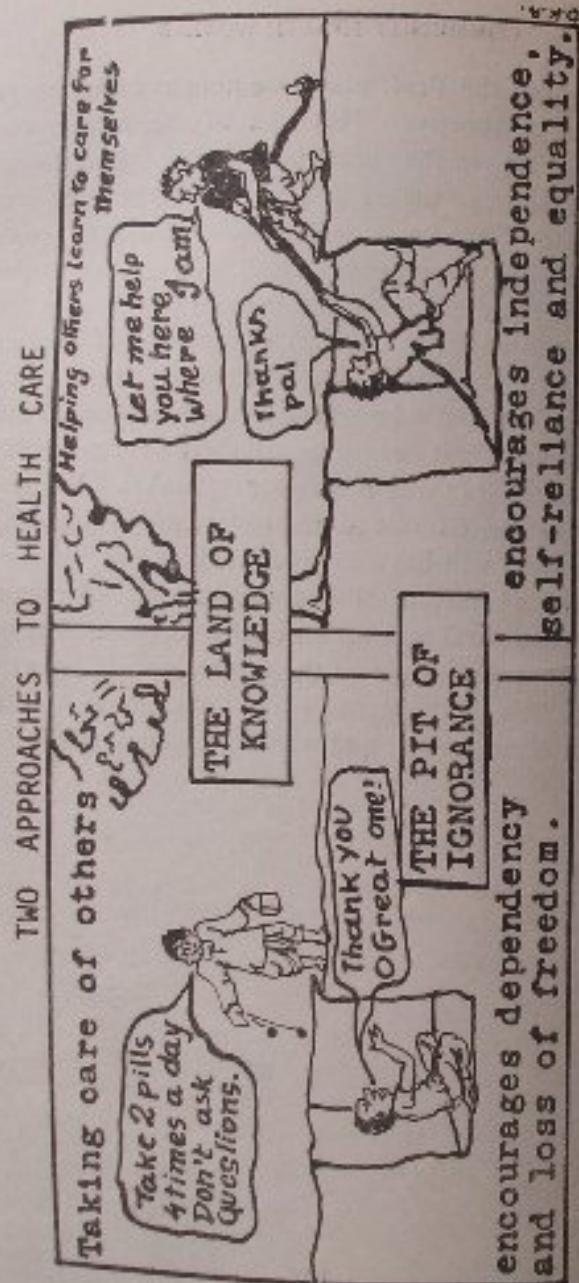
The enormously complicated sociological aspects of the working of these dais, whose professional actions are governed by age old traditions and relationships, have been grossly unappreciated. To envisage that they will play an active role in an externally conceived MCH programme, when tradition consigns to them an untouchable status at all times save at actual birth, is impractical, for this MCH programme is supposed to have antenatal and postnatal components. Similarly, the expectation that they will propagate birth control measures, when their natural interest lies in a high birth rate, has proven to be a dubious proposition. Moreover, the great importance of distinguishing between ordinary students and these women who have half a life time of professional experience behind them, has been missed.

The plan mentions that the existing health infrastructure at the field level would be strengthened by the training of male and female multipurpose workers and of health assistants. Large nos. of such functionaries would become necessary. No specific budgetary allocations have been made in the plan for this important aspect, obviously necessary to the overall success of the programme. This recommendation also implies the naive assumption that the district health administration, with some strengthening at the field level will be capable of administering the programme. Changes all down the line seem to be necessary in reality.

Throughout the draft plan, we note a complete lack of historical perspective. Not one of the recommendations embodied in the draft plan is new. Each one of them has been tried before and has failed. In many cases, these failures have been well documented and studied. The dai training programme (with a 6 month training scheme vs the present one), the peasant physician scheme, schemes for integrating the various systems of medicine, the failures of the PHCs and their doctors to provide medical services, the scheme for training additional multi-purpose paramedical personnel, all these have gone before. We have learnt nothing from our mistakes. While the farce will be played out to the bitter end in the villages, the government will have avoided making any hard decisions for the alteration of the imbalanced allocation of funds between rural and urban health services. The great tragedy is that the failure of the draft plan will be ascribed to some flaw in the basic good concepts embodied in the plan, and not to the quality of the planning effort.

**Community Health Worker :
National Experience**

Rushikesh Maru



The last two and a half decades of Indian experience in rural health planning raises some significant issues relating to organisational design for health programmes. The paper aims at discussing some of these issues emerging from IIMA's (Indian Inst. of Management, Ahmedabad) research studies on management of rural health centres in India.

It is necessary to describe the evolution of the structure of rural health services in India. This should provide a basis for understanding the rationale for the introduction of a major organisational innovation since October 1977. The implementation of Community Health Worker (CHW) scheme in 777 primary health centres marks two

major departures from the past attempts at organisational reforms in rural health programme. First, for the first time, the scheme attempts to transfer administrative control of a health programme to the community. Second, it strikes at the root of medical profession's monopolistic attitude towards health care functions. Since the design of the CHW scheme is revolutionary, our objective is to analyse the response of the primary health centres to this innovation.

After a brief description of the evolution of the rural health organisation in India, we will discuss some of the major findings from our on-going research on the CHW scheme. Finally, a few alternative models of organising rural health services will be outlined.

Evolution of the Rural Health Structure

For nearly a decade after the independence, the Indian health bureaucracy was organised on the assumption that the health status of the rural people can be improved by building clinics in rural areas. Thus, the health problem was essentially defined as lack of adequate clinical services. By early 1960s, it became clear that rural health clinics were grossly underutilised. It was also realised that the provision of services was a necessary but not an adequate condition for improving rural health status. The more important task was to raise people's awareness about their own health problems.

A large number of para-medical and extension personnel were recruited in early 1960s to undertake service delivery and educational activities in rural areas. These field workers were expected to conduct regular home visits in villages under their jurisdiction. They were

administratively linked to and supervised by the Medical Officer (MO) of the primary health centre. Each field worker was responsible for carrying out one of the specialised health functions in an assigned area. Thus, there were separate workers for malaria eradication, vaccination, sanitation, family planning and maternal and child health. Although in theory all functionaries were expected to perform both service delivery and educational function, in practice, the educational activities were mainly confined to family planning. This reorganisation marked a change in approach from clinic-based services of extension activities.

The extension approach remained the predominant philosophy during the 1960s. However, by early 1970s, it was becoming clear that the two most important indicators of health status—the rate of population growth and infant mortality—were continuing to remain high despite emphasis on education and field services. This was mainly due to the following weaknesses in the programme :

- (1) The increasing emphasis on achievement of targets was in direct conflict with the education-communication approach.
- (2) The size of population entrusted to each field worker was around 10,000 for male workers and 15 to 25 thousand for female workers. It was physically impossible for the worker to provide intensive education and counselling to more than 10 to 15 per cent of the population.
- (3) The field workers were finding it difficult to persuade majority of the rural people for health acti-

vities which required deeper attitude changes and for which there was no real felt need within the community. Thus, family planning, health and nutrition education, immunisation and environmental sanitation got neglected. Those activities which were visibly connected with specific ailments, such as malaria eradication were easily carried out. The workers providing malaria pills and taking blood slides were able to generate much better rapport with the rural people than their counterparts in family planning or health education.

New Multipurpose Worker Scheme

In order to overcome some of the shortcomings mentioned above, a major change in the PHC field organisation was initiated in 1975. Under the new Multipurpose Worker (MPW) scheme implemented in selected district, field workers were given training in all the health functions, including primary medical care. Each field worker was required to carry out all the health programme activities in a population of 6,000 to 7,000 spread over 3-6 villages. Initially Auxiliary Nurse Midwives (ANMs) were not included in the scheme, but by now all—both male and female—workers are trained to perform multipurpose tasks.

After the implementation of MPW and CHW scheme, the organisational pattern will be as follows: At each PHC there will be 3 medical officers and 4 Sector Supervisors (S.S) (approximately one S.S for 20,000 population). Each S.S will supervise 4 MPWs and each MPW will operate in the area which has 5 CHWs.

COMMUNITY HEALTH WORKER

The multipurpose worker scheme is still in the process of phased implementation. The state of Gujarat pioneered this scheme even before the central government finalised its details. We studied implementation of the scheme in both Gujarat and Uttar Pradesh. Our research clearly shows that the MPW scheme has resulted in larger coverage of population, specially in more routine health activities such as malaria eradication, gathering of small pox and other epidemic information and vaccination. We also found that the workers were satisfied with the MPW scheme as it improved their rapport and credibility with the rural population. When a worker visited a family, he had something tangible to offer to his clients in terms of general medicines or radical treatment for malaria. He could also utilise his time better as even if the family showed unwillingness to accept family planning advice, the worker could meet their other needs. The improved rapport with the rural people should ultimately result in better worker-client communication in more tangible areas of activity such as family planning and health education.

Our research also indicated the following weaknesses of the MPW scheme.

- (1) The redefinition of roles and tasks did help to reduce the area of operation from approximately 10,000 to 6-7,000 population for male workers. This was still beyond the capability of the worker for effective coverage. The situation in regard to female workers was even worse.
- (2) While the MPW scheme did help to integrate various health activities in the role definition of the field workers, it discouraged team work by its

very design of assigning separate geographical area to each worker. Teamwork was found to be more effective than home visits by individual workers in situations where whole village develop strong resistance to family planning or immunisation*.

- (3) Another important weakness of the MPW scheme is that it perpetuates the family oriented service delivery and communication approach of the old structure. The tasks which require collective effort or mobilisation of group support can be more effectively accomplished through community-oriented approach. In the latter approach, the focus of services, communication and incentives is on the community and not the family. Community participation in identifying its needs and resources as well as controlling some of the health functions becomes critical to this approach. Thus, environmental sanitation and nutrition programmes which require community mobilisation and support can only be accomplished through community-oriented approach.

The Community Health Worker Scheme

Since the MPW scheme was unable to drastically reduce the worker-population ratio and involve village

* In one of the southern states of India, an experiment was conducted to send a team consisting of field workers from health, revenue, and development department to visit villages and provide multi-purpose services. This organisational strategy was found very effective in family planning education.

communities in health programmes, a new organisational innovation was introduced in the form of a Community Health Worker (CHW) scheme.

The CHW scheme was inaugurated on 2nd October 1977, in 777 Primary Health Centre areas. The scheme envisages training of one community health worker for every village community comprising of 1,000 population. The community selects one of its own members for undergoing a 3-month training in simple and basic health care at the primary health centre. During the training period, the CHW receives from the government, a monthly stipend of Rs. 200/- . After the training, the CHW spends two/three hours a day for health work in his community. The government provides honorarium of Rs. 50/- per month and basic medicines worth Rs. 50/- to the CHW. Both the honorarium and medicines are disbursed through the primary health centre. The routine function and activities of the CHW are controlled by the community. As he is not a government employee, there is no direct line relationship with the PHC staff. The local community can decide to change the CHW if he does not perform well after the training. But, in such cases, the community is expected to bear the cost of training the second CHW.

A study which was conducted by the author in collaboration with Professor B.L. Mittal concentrated on studying the implementation process in 4 primary health centres in the Lucknow district of Uttar Pradesh. The three organisational interfaces included in the study were :

- (1) PHC-District-State
- (2) PHC-CHW
- (3) CHW-Community

Different methodologies were used for each interface. The PHC-District-State interface was investigated through a one-day diagnostic seminar in which the PHC doctors as well as district and state health officers participated. The main objective of the seminar was to discover the varying perceptions of the scheme, problems of implementation, and attitudes towards various dimensions of the scheme. The PHC-CHW interface was studied through unstructured interviews as well as content analysis of essays written by the PHC staff and the CHWs. CHW-Community interface was studied through unstructured interviews with CHWs and discussions with community groups. We also compared the characteristics of clients served by CHWs in 20 selected villages with the socio-economic profiles of the respective villages. We are not able to present findings from our village survey as the analysis of the data is not complete. Nevertheless, the following organisational issues emerging from the first two interface studies and preliminary scanning of the village data are presented for discussion.

(1) Administrative control vs Community participation

As mentioned earlier, one of the most innovative characteristics of the CHW scheme is that the formal control of the scheme is divorced from the official health bureaucracy. The village community has been entrusted with powers to select, supervise and even dismiss a CHW. How far the traditional health bureaucracy used to vertical control of health activities has adjusted to this new reality ? This question can be answered by analysing the bureaucracy's views on desirability of formal control as well as their actual behaviour in relation to the CHWs.

Let us first analyse the opinion of health functionaries at various levels on desirability for formal control. One interesting finding is that the expressed desire for control was inversely related to the level of bureaucracy. The desire for formal control was the strongest among the lowest level field workers who interact with the CHWs on regular basis. It decreased as we moved up to the district and the state levels. Our study of PHC-CHW interface revealed that large majority of PHC staff favoured PHC controls over both the selection and the day-to-day activities of CHWs. A few examples of the views expressed by those field workers who favoured control are revealing of their attitudes towards the CHW scheme.

- “Control is a must because people are dishonest”.
- “There is no love without fear”.
- “The CHW will work with sincerity and responsibility only if he considers himself a government employee”.
- “PHC doctors and supervisors must be given powers to evaluate CHW's work and to deduct their monthly allowance if found negligent”.
- “Without our supervision, they will not comply with our demands as many of them are leadertypes”.

These views show how the authoritative culture of the bureaucracy continues to resist any new innovation which undermines its power to command and punish.

The Medical Officers of the PHCs studied were divided on the issue of control. Those who favoured control argued that it was desirable to ensure proper use of medicines by the CHWs. Among those who did not favour control, there were two different motivating factors :

(1) genuine positive attitude towards community participation; and

(2) desire to avoid political pressures from various community groups. The latter factors has been mentioned by many medical officers who have attended our training programmes. Very few medical officers go through any kind of management orientation during their medical school education. Therefore, they are neither equipped nor willing to manage the political environment within which they function.

(2) The PHC-CHW Interface : Their Mutual Role Perceptions

One of the factors which strengthen desire to control is an environment of mutual mistrust between the PHC staff and CHWs arising out of differing perceptions of their respective roles. The relationship between the CHWs and the PHC staff ranged from one of extreme cooperation to hostility. Whenever the relationship was strained, the PHC staff generally viewed CHWs as their aids, if not subordinates. Thus, they expected the CHWs to reduce *their* workload, remain present during *their* visits to the village, help in performing *their* functions. Also, when the CHWs complain about quantity and quality of PHC services to their community and demand better performance, this is resisted as "leader-type" behaviour. Similarly, the CHWs who are in conflict with their PHC counterparts view the latter as dishonest and work-shirkers. This love-hate relationship between the PHC staff and the CHWs arises out of their mutual dependence on each other. While the worker depends on the CHW for obtaining cooperation from resistant villagers, the CHW

depends on him for timely supply of medicines and continuous technical guidance.

(3) Institutionalisation of PHC norms

The PHC staff's perception of the CHW as an extension of the PHC network in the village community has an undesirable consequence of gradual institutionalisation of PHC norms within the operating culture of the CHW scheme. This process is illustrated by the following examples :

3 (a) Since the PHC continues to have control over resources (i.e. stipend and medicines) and technical knowledge, in actual practice the CHWs have tended to define their roles in terms of same activities as those carried out by the PHC staff. Thus, the concern for activities *per se* dominates and not their consequences for the improvement of the health status of the community.

(b) Overemphasis on curative and repetitive routine preventive activities continues. The CHWs are also not doing much for environmental sanitation, health education and nutrition.

(c) Individual and the family continues to be the focus of CHW activities. Despite their membership of the community, very few CHWs have generated health actions at the community level.

(4) Matching Community Needs with the Design of the Scheme

The main rationale for creating a functionary outside the health structure was to develop a better match between health activities and community needs. The CHW is expected to know felt needs of the community and pro-

vide services accordingly. If the action required is beyond his skills or resources, he should draw on the resources of the formal health structure and in the process render it more responsive to community needs.

In order to investigate the fit between CHW's activities and community needs, we have asked two simple questions.

- (1) To what extent the clients served by the CHW represent the cross section of the total village population ? This question is important as most developmental programmes in India have largely benefitted the upper socio-economic groups.
- (2) Do the CHW activities address the most critical health problems in the village ? Is he serving the most vulnerable client groups from the point of view of health status ?

We do not have adequate data to fully answer these questions. Nevertheless, some broad trends can be derived from preliminary scanning of data from 12 village communities.

The first indicator of social disability is the proportion of scheduled caste members in the total population and in the total number of clients served by the CHWs. While the scheduled caste members form 43 per cent of the client group, its representation in the total population is 51 per cent. While this does indicate some under representation, it is not grossly tilted in favour of upper castes. Similarly, the proportions of agricultural labour in the client group and the total population are not very different. We do not have data on landless families for the 12 villages, but we know that approximately 15 percent of

Selected Characteristics of Population and Clients

	<i>in total population*</i>	<i>in clients served by CHWs**</i>
1. Proportion of scheduled caste	51.19%	42.93%
2. Proportion of literates	24.72%	33.00%
3. Proportion of cultivators	23.69%	23.96%
4. Proportion of agricultural labourers	6.37%	8.50%

* This refers to total population of 10,796 in 12 villages.

** This refers to 2337 clients served by the CHWs in above mentioned 12 villages during first six months of their appointment.

the clients served by CHWs of these 12 villages came from landless families. But some rough sense of the magnitude of landlessness can be had from aggregate data available on the whole PHC area. In this PHC area landless families constitute 9 per cent of the total families. Thus, it is clear that the socially and economically deprived sections of the population form substantial part of CHW's clients*. However, in order to establish that these most

* This would have been expected as the upper socio-economic groups are more likely to approach qualified private practitioner for health problems.

needy groups are given priority, their representation in the client group should increase substantially above their representation in the total population.

Do the CHWs address the most prevalent health problems of the area ? We have compared the disease profile of the PHC with the disease profile emerging from the daily diaries of a few CHWs. The analysis is not complete, but preliminary comparison indicates that the CHWs are addressing the most prevalent diseases in the area. What is disturbing is the conclusion that CHWs are also concentrating on curative tasks and not giving adequate attention to preventive and promotive health measures. It is well established by a number of health status surveys conducted in various parts of India that majority of diseases are due to nutritional causes and susceptibility to infections due to poor personal and environmental hygiene. Our analysis of the PHC disease profile showed that nearly 80 per cent of the diseases treated by the PHC staff in 1977 could be etiologically connected to malnutrition and hygienic conditions in rural areas.

The two most vulnerable client groups are children in the age group of 0-5 years and pregnant mothers. All the CHWs in our sample except one are male*. It is questionable whether male workers can effectively communicate with mothers and children.

* In fact this is true throughout the country. Our National study showed that only 6.3 per cent of CHWs were females. (See : An Evaluation of Community Health Workers' Scheme. Technical Report 4, National Institute of Health & Family Welfare, New Delhi, 1979, App. V(b).

An important issue that emerges from our discussion of the fit between the CHW scheme and rural health problems is that curative role of the CHW is reinforced by both the prevalent orientation of the health system and the felt-needs of the community. Our national study also showed that community leaders considered treatment of minor ailments as the most important function of the CHW.* In fact, they did not even refer to other functions such as communicable diseases, immunisation, family planning and environmental sanitation.

It is exactly in these areas of activity that CHWs will be required to create demand and mobilise community support. This requires a different role definition and probably selection of a different kind of individual who can command enough respect within his community.

Towards Alternative Approaches for Organising Rural Health Programme

We have briefly reviewed the major organisational changes in the Indian rural health programme. We have also presented some issues arising from our research on the community health worker scheme. While the successive reforms have led to gradual increase in coverage of population, the nature of activities carried out by various structures have not undergone any significant change. This has happened mainly because most organisational reforms have followed clinician's framework for analysing the client environment rather than epidemiologist's frame work of community health. Thus, until very recently, all restructuring efforts have followed a segregated view of

* *Ibid*, P. 27

the health problem, and designed separate organisational sub-structures for each aspect of the problem.

The vertical organisation strategy for various specialised programmes underwent major change with the implementation of the multipurpose worker scheme. One of its major problems was that it sought to integrate activities which required different technologies of organising. When routine service tasks and non-routine educational tasks were integrated in one role, the tendency was to emphasize the former at the cost of the latter. Also all the structural changes were being brought about without any effort to simultaneously readjust the clinical professional culture of the organisation. Even the CHW scheme which is expected to be free from the cultural and structural constraints of the official health organisation is likely to achieve moderate change in the strategy of rural health care delivery system. It is difficult to predict at this early stage as to what would be the ultimate out-come of the tension generated by the introduction of the CHW scheme. There are two alternative hypotheses :

First, it is quite likely that the tension and conflict generated by the CHW scheme can act as a major force for change in the culture of the formal health organisation.

Second, it is equally likely that the CHW scheme itself will be coopted by the formal health organisation, first through cultural assimilation and then through structural absorption.

If the second hypothesis is accepted, we need to think of restructuring the existing relationships. There are five different models of reorganising the existing relationship.

Model One

Within the primary health centre organisation, we can separate clinical and health tasks. While the doctors should be left in charge of clinical activities, all extension work and public health activities can be entrusted to a non-medical officer with social-science background. Alternatively, he could come from the public health cadre of the health and medical services. All incentives to CHWs should be linked to his performance in health education, nutrition, community mobilisation, immunisations and family planning.

Model Two

Let the PHC remain in the present form, but the CHW scheme may be placed under the general guidance of the Block Development Officer who is the Chief Executive of the local elected government. In this case, the disbursement of monthly honorarium and medicines should also be under the control of the Block Development Officer. Develop mechanisms to integrate health functions with other developmental activities.

Model Three

Let the village *Panchayats* (elected councils) directly administer the CHW scheme without any involvement from the PHC or the Block Development Officer. In both model two and model three, the PHC will have only the training function.

Model Four

De-emphasize any formal control and follow a model

of PHCs as private practitioners who are paid on the basis of achievement in health activities. The incentive system be geared to achievement of priority tasks.

Model Five

Do not train only one person, but train a large number of critical individuals from the community. In this case, all financial incentives should be directed to the community and not to individual change agents.

Each of these models of reorganizing the rural health programme in India needs to be discussed in the light of past experience and experiences in other developing countries.



Is our country that short of doctors ?

16

Training of Dais

Mira Sadgopal

Everything should be made as simple as possible, but not simpler.

—Albert Einstein

This is a sort of speculative appeal from one who is probing into the activity of dai-training and feels the acute need to communicate with others who have already faced, or are presently faced with, a similar challenge. As a female medical practitioner (MBBS) associated with a rural education and development agency (Kishore Bharati Group) I was recently approached by the local Block Primary Health authorities to assist in the impending programme of training traditional dais to meet the requirements of the Government's revised rural health services plan. My colleagues and I accepted the invitation with considerable interest, as we have done some thinking on the problems in this line over the last year or so. The activity is consistent with our wider exploration of 'non-

formal' methods of education. We have also taken up a three-year Block-wide research and action study of the various categories of traditional indigenous health practitioners, including dais and their relationship to 'primary health care' such as it is. In the latter context, we are interested in observing the type of response which arise when traditional dais are put in situations of interaction with government health workers and 'the system'.

The scenario is as follows : There are 126 villages in Bankhedi Development Block, encompassing a total population of roughly 60,000. At crude estimate there are probably about 100 practising, 'dais' in this area. Caste-wise, they are predominantly *Basoards*, an 'untouchable' caste in present society. Only in areas where there are no Basoards, *chamar* women perform this function. A few *Maiter* women also attend births. Practising Basoarins range between the ages of 20 and 70, the average age falling around 40. The younger ones are inexperienced and mostly attend calls of the poor. The oldest dais are frequently blinded by cataract, but are sometimes in demand among wealthy households on the strength of past reputation. The middle age range is most competitive about the profession, and such dais frequently express shrewd concern about building up a prestigious reputation in the homes of the socially elite. Occasionally a woman of another caste will gain a reputation—a 'khawasin' (barber's wife) has been observed to be called by the family for active diagnostic 'consultation' in cases of abnormal labour. She is able to do a *per vaginum* examination (with bare hands, of course) and detect the position (attitude) of the foetal head from the direction of the fontanelles. In another case, a socially ostracised *kotwal*

widow has a certain reputation in managing prolonged labour. At present, neither the traditional midwife caste nor the occasional self-made 'expert' has the slightest thread of a relationship with the organised health services, and when a case is shifted from the dai's care to the visiting nurse or the hospital, the dai ceases to matter. On her part, she suavely 'washes her hands' of the case, covering up a feeling of inadequacy and public loss of face. From the health services' point of view, the dai is never thought of as a referring agent, and hence is almost always ignored even when she is still present. If she is not ignored, she will almost certainly be given a one-sided verbal thrashing in the presence of her villagers for her supposed ignorance and unhygienic handling. A wise dai would better be absent, with her independent reputation intact.

The training of dais has been a mental challenge to the Directorate General of Health Services of the Government of India for many years. A booklet entitled *Training of Dais* was published by the Directorate first in 1960, analysing the profession and proposing a concrete programme in minutest academic and administrative details. The booklet also contains the 'Regulations and Syllabus for the Training of Dais' sanctioned by the Indian Nursing Council. The programme was started in a few selected development blocks of some states. Apparently very little concrete and purposeful evaluation of this programme was ever done and government enthusiasm sputtered and nearly flickered out. A few ten-year-old dai-kits are to be found in some subcentres of our block in the charge of the ANM. The programme itself never thrived. The state of use and maintenance of the kit is obviously poor, many parts simply rotting from disuse, or used for other things.

Occasionally, one comes across a sort of relaxed symbiotic relationship between a good-natured ANM and an untrained dai, a situation which sometimes arises automatically under favourable circumstances. The dai kit does not come in between the two but continues to collect dust in the deserted MCH clinic rooms, along with the white-enamel UNICEF baby-weighing scale.

Suddenly, the machine of state has roused out of its sleep, and sees the possibilities of the rural health services in a 'new light'. It realises with uneasy concern that time has been lost, and must be made up. The people are suffering—some might be getting restless. With the Honourable Shri Raj Narain at the banner head of the Health Ministry a 'Draft Plan' has been launched. Almost all of the good-old ideas have been dug out and draped in new garb. Since time is to be made up, regulations are to be relaxed, time limits shortened, and monetary incentives raised. The dai-training programme is a perfect example of this treatment (see table).

A look into basic principles of the Government programme is in order:

1. Traditional village midwives are to be educated to adopt certain modern practices of *hygiene and obstetric science*, of which they are presently unaware and hence unknowingly promoting hazards to the health of mothers and babies during the birth process.
2. The adoption and promotion of family planning *birth control* measures are desirable but dubious role which the Government has envisaged for these women, considering that their vested interest naturally lies in a high birth rate.

Some Outstanding Differences in Former and Present Dai-Training Regulations

Indian Nursing Council Regulations (1960*)	Govt. of India and State Directors of H.S. 1977**)	TRAINING OF DAIS
six months	one month	
twentyfour to forty-eight	eight	
twenty	weekly (once for four weeks)	
ten	(only two realistically possible) (three to four realistically possible)	
twenty	Any PHC (most PHC's have ANC Clinic only in name, only few deliveries per year.)	
Any MCH Centre/PHC having Well-established ANC programme and midwifery services.		
6. Regulations for training place		

* Training of Dais, Directorate Gen. of Health Services, G.O.I., New Delhi, 1964 (2nd Ed.), Appendix I.

** Recent communications from District Health Officer and District Mass Information and Education Officer (F.P.), Hoshangabad and Block Extension Educator (F.P.), Bankhedi PHC.

3. Trained indigenous dais are envisaged as playing an active role in the nationwide *MCH programme*, including antenatal and postnatal care. This concept carries with it certain sensitive impracticalities in today's social set-up, considering the untouchable status of the dais as a class, who are usually called upon only at delivery time.

Despite the contradictions inherent in the second and third principles here given, a systematic and sustained attempt to weave the professional dai into the general tapestry of the national health services system is obviously a desirable thing from many viewpoints. However, in order to make any meaningful headway towards the goals, understanding and appreciation of the particular situation of untrained dais as a class must actually be incorporated into the training programme, and *inculcated strongly* into those responsible for this training. The latter will probably be the most difficult task of all.

Firstly, it is important to distinguish between "students" and the typical nursing or midwifery student, or even medical students. Fundamental differences in social status, daily cultural and physical environment, prior education and convictions must be measured up. Illiterate dais enter into training with almost half a life of work experience behind them, and no practical understanding of the benefits of modern methods. The ordinary educational methods of lecture-demonstration cannot be foisted upon them with good result. Standard teaching aids are not going to be useful without careful testing and appropriate modification. The availability of the most practical teaching material, women in advanced pregn-

ancy, must be ensured in sufficient quantity. On the other hand, chances to develop certain unorthodox but familiar learning situations, such as guided gossip-type story-telling sessions, should not be missed. For this, each dai will have a fund of past experiences in her memory to contribute from. Maximal association of the dai's past experience with newly learned practices is one factor necessary to break old habits and foster the maintenance of newly set standards.

Likewise, the course sequence for illiterate but experienced dais must be confidently rearranged to maintain and develop her interest in learning. Thus, abnormal labour should be discussed such as to lead up to appreciation of the normal, rather than the other way round. Late obstetric complications should be taken up before early ones, and anatomy and physiology should be explained appropriately at various points and not in one indigestible lump in the beginning. Asepsis is a concept which must be either subtly or overtly introduced and reintroduced in every session, not in a single lecture. Family 'welfare' can be discussed whenever relevant.

Another problem to which attention needs to be given is the dai kit itself. For example, rather than including the suggested mercury thermometer, (for puerperal fever), wouldn't it be better to train the dai to recognize fever more simply. The measurement of pulse rate, an important index of well-being, can probably be taught with the use of a simple $\frac{1}{2}$ minute sand-glass or other simple standard time counter which could be developed. Scissors could be replaced by a couple of good quality stainless blades, less likely to be snatched, lighter, more easily sterilized, cheaper and easily replaced. The expensive

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rubber mackintosh can be replaced by cheap plastic sheeting locally available in half-slit bag form as '*barsatis*' at the beginning of the monsoon weather. Inclusion of rubber catheter is controversial for risk of urinary infection. On the other hand, a well trained dai might have the skill to use rubber gloves, currently not part of the list. Active research is needed to solve these questions.

A major stumbling block likely to remain until and unless widespread changes come about in the priorities of medical and nursing education is the interprofessional relationship between the health team members. Mutual respect is the critical factor missing, constantly nipped in the bud by the gnawing temptations of growing capitalist society. Even the dai will sharpen as she enters into the system where justice and quality has little place without a price. This, however, is beyond the realm of dai-training....

*"The more we look back,
the more there is to look ahead".*

Winston Churchill

When the Search Began

Medico Friend Circle Group, Sevagram



*He always wastes his time doing such new silly things.
He calls them 'wheels'.*

The Medico Friend Circle group in Sevagram, Medical College for some time now, has been trying to understand the present health care system and to evolve a better suited and more practical health care system for those who need it the most.

One definite advantage that this group has is that the medical college itself is situated in a rural set up, thus offering a chance to experiment with delivery of health care in one of the villages closeby.

It would only be proper in all sincerity to accept that there is little change we could bring about by our medical help in the overall situation. This is not unique in itself. As John Bryant writes—"In every corner of the world the products of the present medical education

system have not only been unwilling to work where they are most needed, but that they have had a limited capability for working there. They have not been prepared to do what needed to be done."

There is no doubt however, that we have realised how limited our knowledge and capabilities are. This has been definitely an educative process for all of us. We would like others to share our experience as it has grown gradually.

From Arm Chair Discussions to the Field

It all started about two years ago, when a group of students realised the hardship a villager has to undergo to obtain any form of health care. This prompted us to start a study group. We tried to analyse health care delivery system of India, China (Health care in China-MFC Bulletin) and elsewhere. Impatient as the group was, it soon felt these arm chair discussions would take us nowhere. It became evident that we would have to work out and try a new way in our own set up of society. The work-experience would teach us better than discussion alone. This prompted us to break up in four groups, visit different villages within a radius of about 10 kms. The groups met later and discussed the situation and eventually narrowed down the choice of experimentation to two villages, one about 10 kms. away without any Pakka road, health services not worth its name and the other 6 kms. away with a culvert to cross in waist deep water during the rainy season and bus service till the neighbouring village. Strong arguments for and against selecting one of the villages followed. Eventually, 'sanity' prevailed. Considering our manpower, transport facility and other

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limitations, village NAGAPUR, about 6 kms. away, was selected.

Once the decision was made, we went to the village Nagapur, met people, introduced ourselves, (at that time mainly to deliver some sort of health care). We also told them we had only skilled manpower. Other sources in form of money for drugs, a place to run the OPD, and a village health worker had to be raised from the community itself. Villagers met in our absence. On our visit next week, we were told they would contribute Rs. 4/- per family for drug bank and to meet our other stipulated needs. The school building was provided to run OPD. Collection of money took some time and by no means was an easy task. We also insisted that people would have to give some remuneration for the village health worker chosen by the community, and that drugs from OPD will be sold at the cost-price on no loss no profit basis. Basic drugs were purchased and stored by the village health worker under our guidance.

Experiences of Work Outside Hospital

Experiences of running OPD were quite different from what we were used to in the hospital set-up. People expected prompt cure, asked for injections and were more satisfied with costly drugs. The poorer section of the community found it difficult to pay even for the drugs prescribed for common ailments, thus they approached us only when the disease had advanced considerably. They had a tendency to ask for free treatment (some felt it was their right to get free drugs as they have contributed Rs. 4/- towards drug bank), keep credit pending and to blame us if the treatment given did not give them prompt relief.

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We soon found out the way to get back the credit. In a village meeting we read out names of those against whom credit was pending and warned that unless it was paid, drugs would not be given to their family members henceforth. They would be asked to pay penalty for the delay, if they did not turn up themselves. We also decided that those who were poor and needed the drugs would be helped free of cost.

Medical survey of the village revealed that out of 72 children below 5 years of age, no one was really healthy. Common diseases were gastrointestinal, skin and respiratory infections. As taught, we acted in typical preventive-social medicine way by trying to dig soak-pits and latrines, but to our disgust, only two soak-pits could be dug (that too by rich people of the same community). Not to think of latrines ! Obvious reason was that a soak-pit costs them about 25 rupees and they did not feel that the morbidity caused by insanitary conditions was worth this amount.

People and their notions

We tried to understand the basis for the concept of open-air defecation by the side of approaching road. Answers were interesting if not exactly amusing. Survey done on defecation practices revealed few elementary facts. The people said—"It is the only safe place during night because the approaching road has street lights", "It is the best place in rainy season, else-where there is knee deep mud", "It is nearest and safest place." The concept is so deep rooted that many doubt whether they can move their bowel to their satisfaction when covered from all sides in a shelter.

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Attempts of repairing community wells turned out futile because Gram Panchayat members were not keen and people could not force for the same.

Attempts to immunise all children against polio were unsuccessful because people had to pay for each dose. B.C.G. inoculation succeeded only upto 60%. A hue and cry was created when one child developed fulminating BCG reaction. Unpopularity of DPT due to febrile reaction forced us to abandon further inoculation until more education was given to people to accept the febrile-reaction. Our attempts to educate people about preventable diseases met with partial success. It was only when film show was arranged that it was possible to collect all village people for meeting.

Meanwhile the village health worker provided by the community had been given some basic training. We tried to link-up village worker to the Government community health worker's scheme. Even after repeated requests by the entire community, person selected by us was not accepted because he was three months younger than the desired age of a community health worker. The local 'Dai' could not be taken up for 'Dai' training programme. This made us realise our limitations before the established bureaucracy and inability of the people to get help from the available government scheme.

Our earnest attempts to deliver goods to community showed rather poor results. We were unsuccessful in breaking the mental inertia of people. This led us to a phase of depression. We were reviewing all our attempts, to see what had we achieved.

Touch Their Felt Needs and See

Meanwhile one day on our way back from dispensary,

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a villager approached us, trying to seek help for getting bank loans. The bank agent did not sign his papers because he expected a share in it. We took up this matter, approached the higher authority of the bank and through our mediation eight people in the village could get the loans earlier. After this episode more and more people came to us for their problems, some for electricity line, for their water pumps, others for cross-breed cows, some others for their local disputes. Our involvement in their priority problems earned credibility. We now did not require any film show to collect people for such issues, just an announcement was enough to collect them together and discussion often went past midnight.

This was a lesson for us. We realised that medical problems were not the priority to the people. It was obvious that to develop co-operative endeavour around health issues was difficult but Medical service may be a very effective medium for initial contact with the people.

Inside the Medical College

The group meanwhile met once a month to discuss topics related to developing village work such as malnutrition (The myth of the protein gap); demand of the tonics by the people (Tonics how much of an economic waste?); huge cost of allopathic medicine (Doctors in drug industry's pocket); growing population and poverty (Population explosion); alternative employment (Khadi, its relevance today) etc. We tried to circulate these articles among the staff members of our college, to share with them our conclusions.

At the next indoor meeting of the group, we tried to evaluate what we had learnt. Many of us found ourselves

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helpless to deal with the extramedical dimensions of health care. Others having realised that process of change is always slow decided to go on trying without expecting big rewards from it.

Towards the hard facts

By the end of an year of regular contact with the people, we decided to collect a village fund, to be utilised for their cause. At a village meeting all agreed to contribute 2 kg. Jowar per acre of land holding. Those who are landless, contributed according to their capacity. We succeeded in collecting contribution from 90% of the villagers. The fund is being utilised for dispensary (electricity line, examination table, cup-boards), for a small library and for some tools to start Balwadi. An adult education class has been started in the village.

Some of the vocal affluent minority in the community saw that we did not join hands with them, preferred not to contribute. The fact was made evident to the community and a consensus decision was taken that non-contributing would not be allowed to utilise the services provided out of the village fund.

By the end of the second year, we tried to collect village funds again. The experience was frustrating. We expected that people themselves will now turn up to offer their share, which did not happen. In spite of sending information to them through village health worker, contributions could not be collected from all. Ultimately we ourselves went from door to door. This time some affluent people preferred not to contribute as they did not see enough gain for themselves, and saw that their contribution is utilised more for the poor (obviously because

they suffer more from the illness). The poor section did contribute, but with the affluent people keeping away, the total sum collected was less than the previous year. We can now fore-see, that more and more rich people will keep themselves away on some pretext or other and the village fund will narrow down to small sum from which nothing else than the remuneration of village health worker can be drawn.

The real seat of most of the preventable illness lies in malnutrition, a disease which cannot be cured by drugs but adequate food. To fill up this caloric gap (at least in under-fives), a big sum is required which cannot be collected in the form of yearly contributions from the poor people. The state does not provide any such scheme. In the absence of proper nutrition, treatment of an ill-child is like a ping-pong game, a temporary satisfaction for the treating physician but without any permanent solution to existing health problem.

We also noticed by this time, that the poor person usually refrains from attending OPD chiefly because the cost of OPD treatment is also beyond his reach and he finds himself unable to pay back the dues. To overcome this failure, we ultimately agreed to institutionalise the work, wherein the hospital at Sevagram agreed to admit and treat the patients free of cost if we so suggested. A vehicle facility was also offered, which would help us to extend the work in more villages around.

We are still experimenting with this model. Time alone will tell us the effectivity of the scheme proposed. But it appears that until the economic standard of the poorest lot is raised, a totally self supporting health delivery system cannot be developed. It is too premature

for us to suggest measures to increase agricultural income. Alternative employment schemes at the cottage level cannot stand in competitive market. The minimum wage though legally Rs. 5/- per day, is also not given to most of the wage-earners today, specially the lady-workers.

The welfare state, though it talks aloud, hardly has any intention of helping the poor. One's right cannot be gained at the mercy of somebody. Unless the marked inertia on the part of the people, to fight for their rights in an organised way, wither-off, the real solution will not appear in sight. Till this stage is reached, health by the people may not be in sight.

What we have learnt

- (1) Our medical education in the hospital is inadequate to equip us with the skill useful in the rural setting.
- (2) Medical problems are not of priority to the people, thus health care delivery provides only an entry into the community.
- (3) People's participation materialises when we get involved in their priority needs of agriculture, employment, education etc., but we are poorly equipped to tackle these problems. Nevertheless attempts should be made.
- (4) Socio-economic factors (poverty) and political frame-work today are the major constraints in the development of appropriate medical care (for that matter even for all round development), a field about which we are kept ignorant during our medical education and this requires immediate attention.
- (5) Most of the awkward behaviour of the people is

their natural reaction in their environment. Inability to understand their environment is chiefly responsible for the big communication gap between them and us.

- (6) Malnutrition is the real health problem. Fight against this illness is in fact a fight against poverty and political interests, a field about which we know little.
- (7) A totally self-supporting medical care can only develop in an economically developed area.
- (8) Medical service can be a good medium for developing contact with the people. For developing health by the people in the true sense, a organised community will be a fertile ground. It is difficult to get people's participation around medical problems, as they are not of top priority, but medical work can certainly be complementary where people's participation is already sought in other priority areas.
- (9) Medical field work is however a very good educating tool to understand the limitations of medical science, mystification of medical science, exploitation by medical profession, and the role of socio-economic political factors in the causation of health problem. It opens up areas of real field research.

At last to quote Winston Churchill "The more we look back, the more there is to look ahead".



It's mid 5th century. It warns : "...If the population continues to grow at the present rate there will not be enough food, employment, shelter by the turn of the century."

Medico Friend Circle : Which Way To Go ?**A Debate on the Role and Limitations of the Medico Friend Circle**

One of the aims of MFC, as initially outlined, was to "analyse critically the present health system so as to increase the understanding of various health and socio-economic issues involved in it."

Three years after its birth, at the fourth annual meet held in Kerala, MFC found itself at the cross-roads. The attempt at a deep analysis of existing socio-economic issues and the feeling in some quarters, that without a socio-economic change, no change is possible in the health system, were not acceptable to all present. This was not the role of MFC, it was felt. If not, what is and what should be its role? In short, WHICH WAY TO GO? This question was raised by Anant Phadke in the Bulletin.

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A lovely debate ensued, (MFC Bulletin No. 28 to 35) which was followed up by the Core Group of MFC at Sewagram in June 1979. The emphasis of MFC then changed without sacrificing its original aims. Kamala Jaya Rao has prepared the summary of the debate and conclusions. It is presented here with the hope that this brain storming will be useful to other organisations of the professionals, in their own search for perspective and role. To read in detail, refer to the relevant issues of the Bulletin.

Editors

Anant Phadke initiated the debate MFC Bull. No. 28, April '78) and said that to clear the confusion among MFC members, they should settle once and for all the role and limitations of MFC.

Health problems cannot be solved in isolation from the general socio-economic problem. MFC may analyse this but cannot help correct the malady that affects our socio-economic structure and politics. The solution to the problem is political but MFC cannot be a vehicle of this change.

Politics is a system where opposed social groups struggle to safeguard their own self-interests. The aim of MFC being to improve the health of the poor, its work has a political aspect. Nor can the MFC be politically neutral'. In our class and caste divided society, there are no general interests but only particular interests of socially opposed groups. If MFC is trying to evolve an alternative approach to health care, it would be opposing the interests of the rich who have a stake in the existing health system. To be politically neutral is to allow the continua-

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tion of the existing system.

The MFC therefore is neither a political organization nor is it politically neutral. We must analyse the health system in detail but not the socio-economic system because the latter cannot provide a guide-line for our work. However, we must keep the following in mind :

1. The maladies of our health system are a part of the malady that affects our socio-economic structure as a whole.
2. Unless society changes fundamentally, the health system cannot.
3. Health reforms alone cannot markedly improve the health status of the population, unless the fundamental problems of poverty are solved.

Limitations of MFC and Tasks before it

The MFC has a very limited role to play in changing this socio-economic structure of the society. Health projects and such other activities of the MFC cannot be agencies for change however exciting the thought may be. MFC can only make a detailed, scientific critique of the present day health system and popularize this amongst sensitive sections of the medical profession and lay public to evolve an alternative approach towards health care.

The MFC can support the masses in their economic and political struggles, but cannot lead such struggles. That is for political organisations. One of the important activities of MFC members has been working in health projects. The central aim of these projects should be to prepare a model of health care which is mass based, run mostly by paramedical personnel and in which maximum effort is made to spread knowledge among people about

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health problems and their prevention. The aim should be to make people as little dependent upon professional help as possible. Such models presuppose dedicated health workers. The health status of the people, of course, will not improve radically because health is more a function of the socio-economic conditions. The health projects, however, can prove that an alternative to the existing highly professionalized, curative-oriented, elite-oriented health system, in which medical knowledge is mystified, is possible.

Another important activity that MFC members can take up is to write in local dailies, popular weeklies and explain to the masses the irrelevance of the existing health system and the possibility of alternative approaches. We can arrange discussions on this theme in various social organizations. We have come to a stage where clarity about our role and tasks has become essential if we are to make any real progress.

Imrana Qadeer reacted very promptly and strongly to Anant Phadke's appeal (Bull. 29, May '78). She questioned as to how one can have a scientific critique of the health system without understanding its social basis, for which discussions on economics and politics are necessary. We should not forget that our medical education is bereft of any sense of social responsibility or social reality. Hence, MFC has to learn about and understand our society.

Discussions on socio-economic issues are essential for a group that talks of social relevance of its profession. They reflect the group's desire to grapple with issues, and do not necessarily make MFC a political organisation.

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Imrana Qadeer felt that Phadke's stand on health projects was also ambiguous. She felt that his stand that these projects will be of practical demonstrative value, though not having much impact on people's health, is of no purpose. Such projects will only perpetuate status quo. It is not possible to build a mass based, people-oriented health care system without touching the socio-economic and political issues.

Abhay Bang agreed with Anant Phadke on his stand on the role of MPC, but not with his ideas regarding health projects (Bull. 29, May '78). The purpose of MFC in making a detailed scientific critique of the health system is not with the intention of evolving a perfect alternative but to create an awareness among the medical profession about its social structure, its maladies and possible solutions. Another role of MFC is to strive for reforms within the system to bring some relief to the people and at the same time help us involve more students and doctors. This is why MFC is getting involved in the Khesari problem (see Kissa Khesari Camp Ka). To this extent, Abhay Bang agreed with Anant Phadke's view point.

But about the role of health projects initiated and run by MFC members he felt that they have a more extended role to play than envisaged by Anant Phadke. Although, they cannot be the chief vehicles for bringing about socio-economic changes, they can be media for conscientisation of the medicos and of the masses.

Through health projects the upper class urban medicos will come face to face with the grave realities of the rural poor. There is then a possibility that the medicos may try to create an awareness among the masses about the

real nature of their problems and induce thinking about solutions. The problem of malnutrition is so directly linked with poverty and exploitation, that it should not be difficult to visualise how a case of PCM can initiate discussion on economic structure and create awareness.

MFC's search is for a new tool, a tool to use health work for conscientisation and for socio-economic change. There is a worldwide search for newer tools of political action. If a citizen cannot contribute to political action through his profession, then this will greatly limit the possibility of people's active participation in socio-economic change. The search for political action through health work should be looked at in this prospective.

This particular role of health projects may not apply to MFC *per se* as an organisation because MFC does not start or run any health project by itself but then is it not one of MFC's roles to help germinate such health projects ?

Dunu Roy too tended to disagree with Anant Phadke (Bull. 32, Aug. '78). He wondered whether members were really aware of the meaning of words like 'masses', 'conscientisation', etc. How can we separate the 'health system' from the 'socio-economic system'? Even assuming that dedicated individuals with an analysis of the health system but not of the socio-economic one, and without an organisational base, are able to set up a mass-based health project, how will the masses learn from it? Where have the various experiments in this country, in education, cooperative production, alternative models of community living or even political organisations multiplied without an organisational, structural and an ideological thrust.

Imrana Qadeer in a second letter (Bull. 32, Aug. '78)

reiterated her view point. She accused Anant of ignoring the basic issue of making doctors socially aware and politically conscious by shifting the responsibility to political parties. She felt that it was necessary to understand the socio-economic issues, because the quality of health depends on the nature of various interreacting forces.

In our medical education, we are not made aware of this totality. *On the contrary, there is a deliberate effort to project only the biological aspects of disease and their technological solutions.* Thus, a doctor is taught to confine himself to the health service system and not to look into areas beyond. Logically, if the concern of the doctor is health and not health service alone, then he has to understand the nature and degree of influence of, these factors on health. Should not the doctors then make an effort to understand the nature of poverty and then decide the approach for resolution of the various issues affecting health ?

The interacting social forces, apart from being the major determinants of health also determine the nature of the health services system itself. In a capitalistic society the system is necessarily unequal. There may be an attempt to minimise the inequalities but it can never stop the process of using health needs as an excuse to develop the medical industry and its profit making mechanism. Therefore, how can doctors, who claim to analyse the health service system, do without understanding the principles of how a capitalistic society functions ?

Kamala Jaya Rao (Bull. 34, Oct. 78) said that MFC's dilemma arises from the fact that it neither purports to be a political party with a new ideology nor a mere

learned, academic medical society. Its members range from those who advocate a 'radical' approach to those who advocate a 'non-violent approach'. May be there were many who had 'no approach'. MFC has to play a strong, educative role to 'conscientize' its own members.

MFC has to be political, in the true sense, for without that a scientific analysis of the existing health system is not possible and without this, there cannot evolve a guideline for action for MFC. The uniqueness of MFC lies in it being a "non-political organisation" discussing socio-economic and political issues affecting the health system. The basic teaching in medical education is to know the aetiology to treat the disease. How can we scientifically analyse the existing health system without discussing the socio-economic system ? For MFC to support people's struggle, it must analyse the root problems that call for the struggle. However, Anant defined politics as that where there are no general interests but particular interests of opposed groups. Then what are the interests of MFC members ? How do they identify or clash with those of the 'masses' ? How will a people's struggle affect their interests ? MFC is a young organization and needs time to define its role. There is no need to settle the question, 'once and for all', now.

Reflecting on the responses to his initial letter, *Anant Phadke* admitted that had he defined the terms he used, he would have seen the weakness of his arguments (Bull. 34, Oct. '78). Like in any other system there is a certain relationship between the people engaged in a certain activity. Health system understood in a broader sense cannot be different from political and economic activities. He admitted the distinction he made between health

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system and Socio-economic system was wrong.

The question, how is the role of MFC different from that of political parties, is unanswered. Abolition of poverty is the precondition for abolition of malnutrition in children. But many political parties are trying to work towards this goal. None of us has been able to answer this question of how our work will be different from theirs.

MFC will have to restrict itself mainly to scientific analysis of the existing medical system. Though widely believed to be so, technology is not apolitical. Today, medical technology is over-professionalised. The whole medical system, including medical education, serves the interests of a few against those of the remaining majority. MFC must concentrate mainly, though not exclusively, on the critique of the existing medical system.

An alternative model of medical care based mainly on paramedical personnel and health-consciousness among the people, where decisions are taken in collaboration with the community, will be a way of criticizing the existing medical care system. Such projects will substantiate our argument that today medical technology is mystified and that medical knowledge can be easily spread to a larger number of people.

Such projects cannot be duplicated in the present system and the reasons can be discussed with the people. This is how through work in the medical field, political questions can be raised. MFC cannot go beyond this. It is true that even a truly mass-based model of medical care can be double edged. It can create illusions that all that is needed to rectify our health system is to increase people's participation. MFC can point out the reasons as to

why such projects cannot be duplicated.

No organisation can exist for long unless it settles the question of its specific role. We must settle this "once and for all".

Changing Emphasis of MFC

When MFC executive committee, editorial board and some invitee members met at Sevagram (28-30 July '79) all the participants were in deep introspective and self-questioning mood. There was no doubt that MFC as an organization was facing a crisis situation.

As soon as the meeting started the discussion began to converge on the question of sagging morale and diminishing enthusiasm of MFC members. Several theories were put forward to explain this disturbing development. The one that appealed most was the apparent or real inability or unwillingness of MFC to come forward with concrete programmes related to health. Such programmes, it was widely felt, would attract and interest young medicos and young doctors.

From its inception MFC has been looked upon as a radical critic of existing health service and the health policies. Inevitably this also meant a wider critique of socio-economic situation of the country as well. Not before long MFC came to be identified as an organization which considered not only that socio-economic changes were pre-conditions for improvement of health conditions but also that 'real activity' to be taken up had to logically aim at socio-economic change only.

The analysis of the situation was lucid enough but it led to two unforeseen consequences. On one hand this brought the state of near paralysis or inaction because no

body could conceivably undertake an activity (health) and feel reasonably sure that this would lead to desired socio-economic changes.

On the other hand younger members or sympathisers of MFC grew increasingly more restive and disillusioned. They had very high hopes that MFC having done such a thorough critique of present state of health affair would now come out with new sets of concrete programmes. This was not to be. MFC failed to provide the necessary lead. Short-comings in this area had to be remedied.

Next logical step was to review objectives of MFC. As they stand, they read as follows.

- (a) To evolve a pattern of medical education and Methodology of health care relevant to Indian needs and conditions; and
- (b) To make positive efforts towards improving the non-medical aspects of society for better life more humane and just in contents and purpose.

There was a strong feeling that part '(a)' must be brought into sharper focus. MFC must actively try to fulfil this part of objective. The objectives of MFC must be reformulated in such a way that it takes into account the changed emphasis.

The proposed reformulated objective of MFC reads as follows :

"It works to evolve a pattern of medical education and methodology of health care relevant to Indian needs and conditions; and these efforts are undertaken with the specific understanding that such efforts must necessarily be part of a broader efforts to improve all aspects of society for a better life, more humane and just in its con-

tents and purpose".

Looking only at words of reformulated objective one may wonder justifiably as to what is this fuss about. Before it is dismissed as an exercise in language only it is necessary to grasp the crucial point, that stated or not MFC's de facto objective had largely come to be socio-economic critique and socio-economic change, leaving its members nowhere in the field of health action. Those who struggled to go into action found themselves severely constrained by prevalent thinking. What the proposed reformulated objective hopes to achieve is to redirect the focus on the almost forgotten objective of MFC. The wordings of the objectives in themselves are not so important to understand the change as the whole tenor of intense debate that took place, and the change in the mood it effected.

Let us hope that with this proposed change in emphasis, MFC will recapture its vigour and a sense of direction and action.

Appendices

**'Operation Medicine':
An Appeal for Vigilant Action**

To fight against the exploitation by Pharmaceutical Industry, we have launched a constructive movement—OPERATION MEDICINE* from 17th July '77.

Dear Medicos, you are an expert in the field and you are the best judge of medicines. If you determine to solve the grievances of a consumer, you can do it in no time.

We humbly request you to support our demands, act promptly and apply it in your day-to-day practice.

Our demands are

(1) *Tin Food Products*—Like Complan, Protinex, Protinulc Farex etc. are sold at very high prices ranging from 40 to 75 Rs. per kg., though the contents in it do not cost more than 5 to 10 Rs. a kg. There is nothing medicinal in it. But with your prescriptions, the pharmaceutical firms get encouragement to sell the tin food products at such a

high cost. In fact, this creates a negative contribution in the nutritional sense of the nation.

Shall we presume that you will stop prescribing these tin foods till the prices come down at par with the contents of food in it ?

(2) *Forte Vitamine Formulas* : Dear Dr., it is a fact that Forte Formulas are waste of the medicines. We have to use vitamines in small quantity with frequent daily doses, whenever necessary. Therefore, please support our demand of rationalising vitamine formulas. The vitamine products should be according to 'National Formulary of India'. The Forte Formulas like Becosule, Surbex T, Cobadex Forte etc. are super-fluous and cost 5 times more than N.F.I. Formula. Will you please stop prescribing them ?

(3) *Irrational B Complex Formulations* like $B_1 + B_6 + B_{12}$ have become very popular. We request you to study this formula more carefully. You will find that it is against the B Complex Therapy. It is not allowed in America and England. This combination has not come in any pharmacopoeia as yet, though it is in use in India for the last 10 years. We therefore request you to stop using this Formula which only drains foreign exchange worth Rs. 3 crores.

(4) *'Alcohol in tonics'* has no justification. Is it true that only alcohol gives appetite ? The alcohol in such tonics only increases the cost of the product and gives a false sense of well being and the problem of alcohol addiction comes in. We therefore request you to stop prescribing alcohol containing tonics.

(5) *Equalization of prices of similar drugs*—Ledermycin 300 mg. is equal to Tetracycline 500 mg. But the price of ledermycin is Rs. 1.50 and Tetracycline is 90 paise.

Dear Dr., please think over it.

(6) *Iron-Ferrous Fumerate* is 4 Paise (Burrows Wellcome) and the same iron with B complex etc., goes to cost 35 paise (Dumasules of Pfizer). We think that the high price has no justification.

We request you again to think over these issues and implement them for the benefit of a poor consumer. By doing this, you are not only helping an individual, but the millions of people will give blessings if the cheaper and standard medicines reach the peripheral parts of India, with your help.

Your valuable suggestions will be appreciated.

*Bharatiya Grahak Panchayat
Arogya Dakshata Mandal*

(From MFC Bulletin—News Clipping)

Operation Medicine : On the Path of Agitation

Faulty decisions by the Central Health Ministry and Chemicals and Petroleum Ministry have cost the consumers about Rs. 1000 crores in the past few years and the nation has lost around Rs 300 crores. Mr. Bindumadhav Joshi, President of All India Grahak Panchayat Samiti, said here today.

What is more that the recent decisions taken by the two ministries would enable the foreign drug companies to fleece the people to the tune of crores of rupees by a wide loophole in the rule, he added.

Addressing a press conference Mr. Joshi said that the Hathi Committee had suggested some very important changes in the Drugs and Cosmetics Act, 1940. Some of

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those recommendations were being implemented and the G.R. in that connection was to be effective from 1st June 1979.

The Centre had in consultation with the Drugs Technical Advisory Board amended the drugs and Cosmetic Rules 1945 and the Schedule V to it and laid down that the "Forte" formula should not be used for manufacturing of Vitamin B Complex pills. It was also laid down that the manufacturers should follow the National Formulary of India. This would have resulted in a reduction of B complex pills from 50 paise to ten paise per pill, as implementation of the rule would have eliminated the excess material in them which was not absorbed by the body but was being eliminated by it as waste in urine.

But this wholesome restriction which would have helped lakhs of patients has been completely done away with, by the Union Health Ministry by a foot-note which grants an exemption to drug companies especially the foreign one.

The foot note says that the above standard shall not apply to single vitamins only or preparations for parental use (injections) and empowers local authorities to grant exemptions to drug companies from the operation of the rule.

This, Mr. Joshi stated, would open large doors for corruption and negate the entire purpose of the restriction. Foreign drug companies would get Rs. 70 crores from Indian customers as a result of it. The Union Health and Chemicals Ministries seem to have the interest of foreign drug companies in their mind than that of the consumers.

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The exemption must be withdrawn, as well known authorities in the field of medicine like Walter Model of Drugs 78 have expressed clearly that excess vitamins act as a sort of poison in the body and they are eliminated by it.

The Grahak Panchayat has decided to launch an agitation against the unwarranted exemption. It would press for it in deputations on drug controllers in 150 cities. He urged doctors and their associations also to support the movement in the interest of the patients.

(MFC Bulletin—News Clippings)

WHO Guidelines for the Treatment and Prevention of Dehydration

Look for Other Important Signs which Need Special Treatment

- (1) Blood in stool
- (2) Fever
- (3) Enlarged spleen (Treat for malaria in endemic area)
- (4) Unconsciousness or convulsions
- (5) Difficult, fast or deep breathing (Acidosis or pneumonia?)
- (6) Marasmus or kwashiorkar

Use of Antibiotic

- (1) Severe Diarrhoea (more than one watery stool every 2 hours or diarrhoea which produced severe dehydration) may be due to cholera. If cholera is suspected, give tetracycline by mouth.

PREVENTION OF DEHYDRATION

- (2) Blood and mucus in stool—is treated with tetracycline for 5 days.
- (3) Other infections like otitis, tonsillitis, pneumonia should be treated with appropriate antibiotics.

Medicines which should not be used in the treatment of Diarrhoea

- (1) Neomycin and Streptomycin (harmful to intestine)
- (2) Purgatives (diarrhoea worsens)
- (3) Tincture of opium or atropine (dangerous to children and to patients with dysentery)
- (4) Coramine (No use). Shock must be corrected with I.V. fluids
- (5) Steroids (dangerous)
- (6) Pectin, Bismuth, Lomotil (No value)
- (7) Charcoal, Kaolin (No value and interfere the action of antibiotics.)

Prevention

The best way to teach the mother is to involve her in the treatment of her child from the start.

Every mother has 5 important lessons to learn.

(1) If the child gets diarrhoea, give him glucose—salt solution, as much as he will drink. Involve mother in preparing and giving the fluids herself to her child during dehydration so that she learns the technique.

(2) Child's feeding should not be stopped during diarrhoea. She should be encouraged to continue breast feeding and not to resort to any breast-milk substitutes.

(3) She should be encouraged to attend health centre for immunisation and nutrition education.

(4) She should be educated in hygienic practices, parti-

cularly in feeding.

(5) It is important to learn from the mother, her beliefs about diarrhoea and feeding, and to distinguish between those that are helpful and those that are harmful.

(Extracted from *Treatment and Prevention of Dehydration in Diarrhoeal Diseases: A Guide for use at the Primary level*. WHO 1976.)

ORT: The Turkish Experience

In a field study carried out recently in a rural district near Ankara—Turkey, oral rehydration therapy (ORT) was shown to be an acceptable and effective method in the management of mild and moderate degrees of dehydration in children suffering from diarrhoea. In addition, the children given ORT gained comparatively more weight than those treated by conventional methods.

Auxiliary nurse midwives were assigned during the study to give ORT at home and to teach the mothers to prepare the fluid. The ingredients—salts (sodium chloride, sodium bicarbonate and potassium chloride) and glucose were provided prepackaged, mostly by UNICEF. Some packages were prepared in the pharmacy of the University hospital. The trial was preceded by an information drive to educate the mothers on the need for early administration of the dehydration fluid and the importance of feeding a child suffering from diarrhoea.

After the study, mothers were asked whether they would give the fluid to a child with diarrhoea. They unhesitatingly said, "Yes". The reason they gave was that children who drank the fluid felt better and ate better, and stopped crying and bothering the mother. The improved appetite may explain the weight gain.

It was observed during the study that the consumption of the oral fluid increased when its taste was good. Some of the locally made mixtures were not found to be as palatable as the one supplied by UNICEF, and this was reflected in the acceptance of the fluid by children.

Another interesting observation was the clear preference of the members to use ready-made packages rather than the "pinch and scoop" method. This method of estimating the amounts of sugar and salt, which is recommended in some paediatric text books, was not so well accepted by the mothers in these rural areas and the directions of the health workers were not followed carefully or willingly.

In the Turkish experience, the utilization of ORT can be increased by,

- Participation of the community in the programme with a major role played by young girls and mothers in popularizing this simple form of treatment.

- Provision of the ingredients in packages carrying health education messages to the mothers.

- Distribution of the packages through grocer's stores, in addition to the health services, to ensure the availability of the product even in small villages.

- Inclusion of ORT in the curriculum of students and adopting this method of treatment in hospitals.

Medico Friend Circle

Objectives

Works to evolve a pattern of medical education and methodology of health care relevant to Indian needs and conditions.

These efforts are undertaken with the specific understanding that such efforts must necessarily be part of a broader effort to improve all aspects of society for a better life, more just and humane in content and purpose.

Background

MFC actually began as a small circle of friends concerned about health problems as they saw them in day to day experiences with ordinary people. The initial impetus for group communication was a letter from a medical intern, in 1973 from famine-stricken Maharashtra to a non-medico friend in Bihar, describing his frustration with the curative and relief approach towards deal-

ing with the health of the people and how the present medical education has failed to equip him to deal with the situation he was facing. The friend who received the letter promptly circulated it to a few of his friends most of them trained, studying or working in health fields. This started as a nucleus for the circle. The communications among each other passed through a phase of semi-regular cyclostyled editions to a regular monthly bulletin now in print since 1976. The printed bulletin and some meetings on specific health issues convened by this nuclear group have helped in the growth of the circle.

The group gradually came to the understanding that a fundamental change in health structure can be brought about only by a radical change in the social and economic structure of the society. With growing experiences and group discussions, it is now felt that it is more practical as a group to concentrate on issues directly related to health care delivery systems, drug industry, medical education etc..

Perspective

The *medico friend circle* believes that the present health system will never meet the basic health needs of our people; not mainly because of lack of resources but because of their underutilization and maldistribution. The pattern started during British rule, continues to be followed by a highly professionalised system subservient to the needs of the urban, upper class and to foreign domination. Medical care has been reduced to curative services, that too oriented towards hospitals in the cities. Interests of the doctors and of the drug industry take

precedence over the interests of the people. Medical education and research do not reflect the needs of the majority of our population. All this has resulted in almost total neglect of the basic health-needs of the majority of people, especially in the rural areas.

A fundamental change, therefore, must occur in the existing health-system. Within the new system, people must gain maximum control over their own health; nurses and other paramedics must not be regarded as inferior to doctors; decentralization should occur as much as possible and traditional forms of medical care must be encouraged to take their rightful place. Alternative approaches to such a system may be numerous, and the *medico friend circle* encourages such explorations. Real success is inseparable from a strong popular movement of the people.

Activities

Various efforts of different sorts to promote the objectives and aims of the *medico friend circle* are undertaken by individual members. Regular communication between members through the MFC bulletin and by other means is important for the development of the organization.

*Local groups in medical colleges and elsewhere meet periodically and take up any study or action-project which involves them in a particular health problem in our society. The perspective of the MFC is discussed in the light of these experiences.

*Individuals and groups are engaged full time in rural projects for evolving alternate health care delivery systems.

*The monthly bulletin is the communication channel

through which members express their view points, analyses, experiences and raise issues directly related to health.

*Regional work, survey or study camps are organized to better understand a certain health problem identified by local group. Several camps have been held so far; for example—"Village health status survey" (Govindpur, U.P. 1975), 'Malaria problem' (Dharampur, Gujarat, 1976), 'Rural poverty-disease cycle', (Bankhedi, M.P. 1977) 'Lathyrism' (Rewa Dist. M.P. 1978). The reports are printed in the bulletin.

Once a year *MFC* members gather at the *All-India Annual Meet* to explore a topic for discussion or to understand the functioning of a particular health care project in terms of a chosen topic. Since 1974, Annual Meets have been held at Ujjain (relevance of the present health services), Sevagram (present health problems), Hoshangabad (Indian nutritional problem), Calicut (community health approach, role of the doctor in society), Varanasi (unemployment among doctors) and Jamkhed (community health worker). RUHSA (Care of under five in community) Tara (Misuse of drugs by doctors.) Organisation

The medico friend circle is not a rigid organisation. It is loosely knit, composed of friends from various backgrounds, usually medical to start with, often differing in their ways of thinking and in their modes of action. But the understanding that the present health services and medical education system is lopsided in the interest of the privileged few and must change to serve the interests of the poor people of India, is a common conviction.

There is an annually elected group the *executive com-*

mittee, led by a member known as *convenor* who serves for two years. The *editor* of the *MFC* bulletin is supported by a small *editorial committee*. Both groups meet twice a year. There is also a *Health projects cell* which collects and collates information on the work of *MFC* groups and individual members.

Finance : Expenses are covered through membership dues, bulletin subscription and contributions from friends of *MFC*. The annual budgeted expense is about Rs. 10,000. Local expenses are usually covered through the resources and contacts of local groups.

Membership : The membership fee includes the subscription to the *MFC* bulletin. It is understood that members capable of contributing more than the minimum will do so. Conversely, the convenor can waive or reduce the membership fees in deserving cases.

Rates : student : Rs. 15/- per year (interns/post-graduates not included)

non student :

(earning \angle Rs. 500/- per month) Rs. 20/- per year.

(earning \nearrow Rs. 500/- per month) Rs. 40/- per year.

Bulletin only : (within India) Rs. 15/- per year.

(Africa, Asia, UK) Sea—4 sterlings;

Air-5 sterlings.

(America-Canada) Sea-6 U.S. dollars;

Air-9 U.S. dollars.

for all payments by cheque add Rs. 3/-

Selected articles from back issues of the bulletin were published in a paperback book entitled *IN SEARCH OF DIAGNOSIS*, by the *medico friend circle* (1976).

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Second edition will soon be available. This book is the second such anthology.

If you wish to know more about *MFC*, or about members living near you, or to become a subscriber of Bulletin or member, please write to our convenor—

Anant Phadke,
50, LIC Quarters,
University Road,
Pune, 411016, India

References

Chapter 1

1. Dunn, F.L: Traditional Asian medicine and cosmopolitan medicine as adaptive systems in Asian Medical systems : A Comparative Study, pp. 133, Ed. Charles Leslie, University of California Press. Berkeley, 1976.
2. Khanra, L : Alternative Approach : Various Pathies' MFC Bull. 1-2 : 6, 1976.
3. Vaidya, B.G. : Ayurveda and allopathy MFC Bull, 10 : 6, 1976.
4. Kothari, M.L. and Mehta, C. : Knowledge is confusion. MFC Bull. 17 : 5, 1977.
5. Vaidya, A.B. and Pandya, S.K. : The golden age of Indian medicine. Bombay Hosp. J. 3 : 95, 1961.
6. Vaidya, A.B. and Pandya, S.K. : Greko-Roman medicine. Bombay Hosp. J. 5 : 95, 1963.
7. Vaidya, A.B. and Pandya, S.K. : Arabic medicine, Bombay Hosp. J. 4 : 52, 1962.

HEALTH CARE : WHICH WAY TO GO ?

8. Vaidya, A.B. : Modern medicine, Science Today. Oct. 1974, p. 26.
9. Foley, G.E. et al; A Comparative study of the use of microorganisms in the screening of potential anti-tumour agents. Ann. N.Y. Acad. Sci. 76 : 413, 1958.
10. Nadkarni, K. M. : Indian Plants and Drugs. Norton & Co. Madras, 1908.
11. Vaidya, A.B., Kothari, M. L., Kapadia, J. and Sheth, U. K. : Common Salt and common cold. Lancet, i : 1329, 1965.
12. Kothari, M.L., Vaidya., A. B., Doshi, J.C. et al; Raison d'etre of hydrochloric acid secretion by stomach, Ind. J. Med. Sci. 21 : 1, 1967.
13. Pathak, M.A. et al : Effect of structural alteration on the photo-sensitizing potency of furocoumarins (psoralens) and related compounds. J. Invest. Derm. 48; 103, 1967.
14. Vaidya, A. B. et al, Treatment of Parkinson's disease with the cowhage plant *M. pruriens*. Neurology (India). Accepted.
15. Damodaran, M. and Ramaswamy, R. : Isolation of L-dopa from the seeds of *Mucuna pruriens*. Bio-chem. 31 : 2149, 1937.
16. Srimal, R.C. and Dhawan, B.N. : Pharmacology of diferuoyl methane (curcumin), a non-steroidal anti-inflammatory agent. J. Pharma. Pharmacol. 25 : 447, 1973.
17. Satyavati, G.V.: Personal communication.
18. Iggo, A. and Vogt, M. : Preganglionic activity in normal and in reserpine-treated cats. J. Physiol. Lond. 150 : 114, 1960.

REFERENCES

19. Chopra, R.N. : Indigenous drugs of India. U.N. Dhar and Sons, Calcutta, 1958.
20. Dhar, M. L. Dhawan, B.N., et al; Screening of Indian plants for biological activity : Part V. Ind. J. Exp. Biol. 12 : 512, 1974.

Chapter 4

1. Lathyrism—A preventable paralysis. ICMR Mono-graph published by the National Institute of Nutrition, Hyderabad (Available in Hindi as : मटरा का लंगड़ा (लेथिरजम्), एक प्रकार का लकवा जिससे बचा जा सकता है।
2. K.T. Ganapathy and M.P. Dwivedi (1961), Studies on clinical epidemiology of lathyrism. Indian Council of Medical Research.
3. Wealth of India—Raw Materials (1962). Vol. 6, p. 37, Council of Scientific & Industrial Research, New Delhi.
4. Pulse Crops of India (1970). p. 314 & p. 9. Ed. P. Kachroo, Indian Council of Agricultural Research, New Delhi.
5. K.K. Govil, B.M. Gupta, S.D. Kapur, N.C. Chakravarty, D.P. Bhatnagar and K.C. Pant (1959) J. Indian Med. Assn. 33 : 499.
6. R.N. Chaudhuri, M.K. Chhetri, T.K. Saha and P.P. Mitra (1963). J. Indian Med. Assn. 41 : 169.
7. K.L. Shourie (1945). Indian J. Med. Res. 33 : 239.
8. M.P. Dwivedi and S.S. Mishra (1975). Proc. Nutr. Soc. India, 19 : 23.
9. V. Nagarajan (1969). Indian J. Med. Res. Suppl. to Vol. 57, p. 92.

HEALTH CARE : WHICH WAY TO GO ?

10. S.L.N. Rao, K. Malathi and P.S. Sarma (1969). *Wld. Rev. Nutr. Diet.* 10 : 214.
11. P.L.N. Somayajulu, G.K. Barat, S. Prakash, B.R. Mishra and Y.C. Srivastava (1975). *Proc. Nutr. Soc. India.* 19 : 35.

Chapter 6

1. C. Gopalan. *Bull. Wld. Hlth. Org.*, 26 : 203, 1962.
2. Measures of Fertility and Mortality in India. Vital Statistics Division, Registrar General, New Delhi, 1972. SRS Analytical Series No. 2.
3. U.N. Demographic Yearbook, 1976, New York.
4. C. Gopalan. *J. Amer. Diet. Assn.*, 39 : 129, 1961.
5. K.V. Rao in Proc. of the Seminar on Population Problems. *World Population Year*, 1974. Dept. of Health, Govt. Kerala.
6. Pocket Book of Health Statistics. Central Bureau of Health Intelligence, DGHS, GOI, New Delhi, 1975.
7. S.R. Santpur and S.V. Savaikar in Proc of the Second International Seminar on Maternal and Perinatal Mortality. (C.L. Jhaveri and R.D. Pandit, eds.). *Fed. Obstet. Gyn. Soc. India*, 1975.
8. J.B. Wyon and J.E. Gordon. *The Khanra Study*. Harvard Univ. Press Cambridge, USA, 1971.
9. C. Gopalan and A.N. Naidu, *Lancet* 2 : 1077, 1972.
10. P.L. Graves, *Amer. J. Clin. Nutr.* 29 : 305, 1976.
11. A.J. Singh and S. Siddhu in *Rural Labour in India* (S.M. Pandey ed.). Shriram Centre for Industrial Relations and Human Resources, New Delhi, 1976. p. 41.

REFERENCES

12. Census of India 1971. Series I. Provisional Population Totals. Registrar General & Census Commissioner, New Delhi,
13. S.M. Pandey in *Rural Labour in India*, Same as Ref. 11.
14. P. Kalhan in *India Since Independence* (S.C. Dube, ed.), Vikas Pub. House Ltd., New Delhi, 1977, p. 215.
15. R.J. Joshi in *Rural Labour in India* (Same as Ref. 11).
16. Charan Singh, *India's Economic Policy : The Gandhian Blueprint*. Vikas Pub. House Ltd., New Delhi, 1978.
17. Critical Issues on the Status of Women. I.C.S.S.R., New Delhi, Publication No. 107, 1977.
18. P.B. Desai, *Size and Sex Composition of Population in India*. Asia Pub. House, Bombay, 1969.

Chapter 7

1. Unless mentioned otherwise, all the figures are based on—CAHP-TNAI (The Co-ordinating Agency for Health Planning and Trained Nurses association of India) Nursing Survey in India, 1975.
2. Pocket Book of 'health statistics', Govt. of India (1973).
3. Quoted from 'Text Book of Preventive and Social Medicine' by Park (1977) Page No. 715.
4. MFC Bulletin No. 50, February 1980.
5. Abhay Bang, 'Learning from Savar Project' MFC Bulletin, No. 58, October 1980.

6. Same as Ref. No. 3 Page No. 718.
7. 'Health for all' Report of the study group Chaired by Dr. Ramalingaswami, 1980.

Chapter 8

1. C. De. ville De Goyet : (1979). Communicable diseases and epidemiological surveillance in relation to natural disaster. *Bulletin WHO*. Vol. 57. (2) 164.
2. Cholera in 1978 : (1979). *Weekly Epidemiological Record*. WHO No. 18.
3. Mosley, W.H. ; Bart, K. J. ; Sommer, A. (1971). An epidemiological assessment of cholera control program in rural East Pakistan. In *uses of Epidemiology in Planning Health Services* Vol. I.P. 546-55. 6th. Int. Sci. Meeting. Primosten, Yugoslavia.
4. Guideliness for cholera control : WHO unpublished document, WHO/BD/ Cholera/75.28.
5. Ibid.
6. Cholera and other acute diarrhoeal disease control. WHO unpublished document.
7. Management of cholera and other acute diarrhoeas in adults and children. Unpublished WHO document WHO/BD/CHOLERA/74.27. Nalin, D.R. and Cash, R.A. (1971). The Optimal Oral Therapy Formula for Cholera and Cholera like Diarrhoea. In *Uses of Epidemiology*. Vol. 2. P. 1048-1057.
8. Prompt control of cholera epidemic in Maldives. (1979). *WHO Chronicle*. Vol. 33. No. 5, P 187-188.

BAC/DDC/76.1.

REFERENCES

9. Brachett, D and Chohen, J. (1971). The epidemic of cholera in Jerusalem. (1970). In *Uses of Epidemiology for Planning Health Services*. Vol. 2. P 1043.
10. Same as Ref. 3.

Chapter 9

1. Bradley D.J. (1977) Health aspects of water supplies in tropical countries. In *Water, waste & health in hot climates*. Ed. by Richard Feachem, McGarry Duncan Mara : John-wiley & sons. London, 3-17.
2. Feachem R. (1977) Water supplies for low income communities : Resource Allocation. Planning & Design for a crisis situation. In : *Water, waste & health in hot climate* : Ed. by Richard Feachem, Michael McGarry, Duncan Mara : John-wiley & sons, London, 75-76.
3. Luis Barreto (1979) The National Water Scene. MFC Bulletin No. 37.
4. Indian Express 3-9-1979.
Luis Barreto (Loc-cit) has given the figure which is very much at variance from this figure. According to him the cost of providing water supply to 'problem villages' would be about Rs. 350 crores.
5. WHO. (1971). International Standards for Drinking Water. Geneva.
6. Park, J.E. (1974) Text Book of Preventive and Social Medicine. 4th Ed. 202.
7. Evison M.L. and James. (1977). Microbiological criteria for Tropical Water Quality. In *Water*

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waste and Health in Hot Climate 30-51.

- 8. Park J.F. (1974) Loc. cit.
- 9. Bradely, D.J. (1970). Health Problems of Water Management. Proceedings of the symposium on the health problems of industrial progress in developing countries. London School of Hygeine and Tropical Medicine, London.
- 10. Holister, A.C., Beck, M.D., Gettelsohn, A.M., and Hemphill, E.C., (1955). Influence of Water Availability on Shigella Prevalence in Children of Farm Labour Families. Am. J. Pub. Hlth Vol. 45, 354-62.
- 11. The importance of guinea worms must be appreciated. It produces arthritis of joints adjacent to active worm and effectively disables infected person for couple of weeks. This could be very damaging because the infection usually occurs during the planting season. At times 70% of village population may be affected with it, dislocating agricultural activities completely.

Chapter 11

- 1. Management of Cholera and other diarrhoeas in adults and children.
WHO unpublished document WHO/BD/CHOLERA/14. 27

Health care : which way to go ? raises relevant but unconventional issues regarding people's health. It tries to help break traditional barriers to thinking and evolve a collective will to search for true answers.

Why is there a lack of political will to solve pressing health problems of the country? How detrimental is the alliance between medical professionals and the drug industry to people's health? Why people are condemned to consume the food which they know well, causes paralysis? What should be the role and tasks of a non-conformist organization like Medico Friend Circle in understanding and solving such problems?

Would the Primary Health Care and the Village Health Worker stand the emerging institutional momentum and rigidities or become subservient to curative, hospital based and undemocratic structure of health care? What is our national experience in this regard?

What is the plight of women either as a recipient or health care taker? How can the approved techniques like cholera vaccination become alibi for relevant and appropriate scientific measures in emergency situations?

A fresh thinking like water washed diseases highlighting the importance of quantity of water versus much emphasised quality of water alongwith untraditional approach to understanding and management of diarrhoea, would be of immense practical value to field workers.